Figure 130

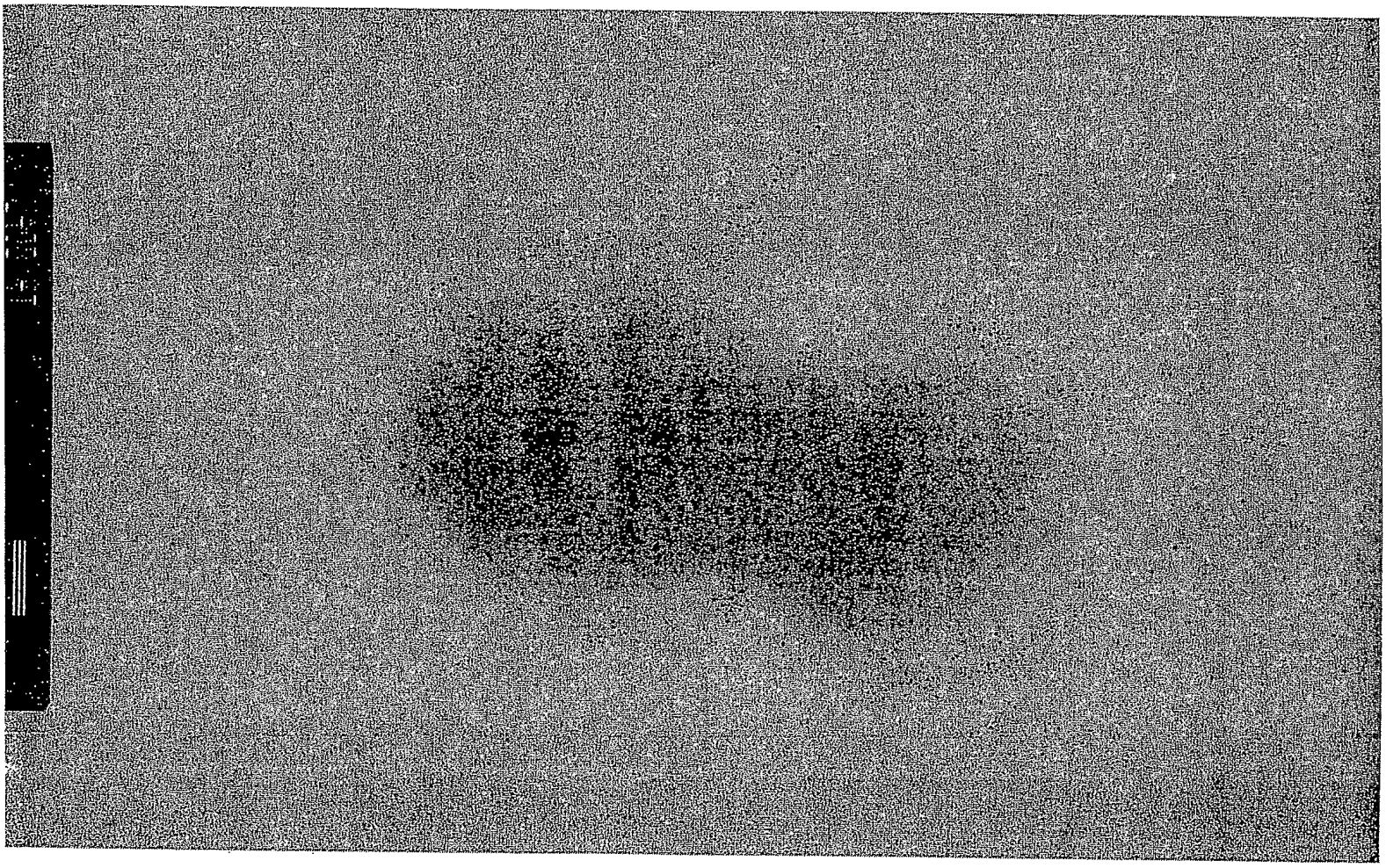

Figure 131

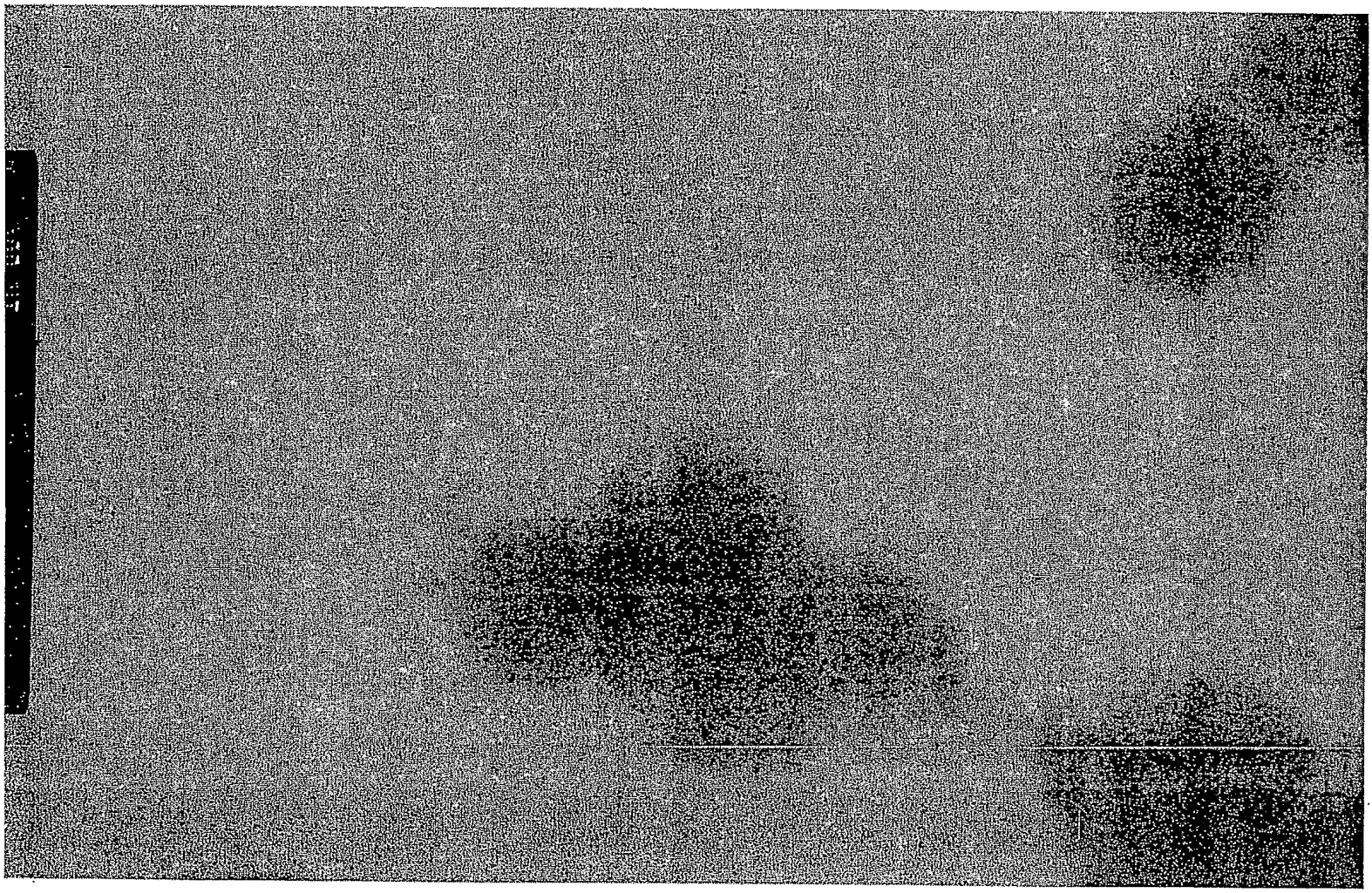

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Figure 132

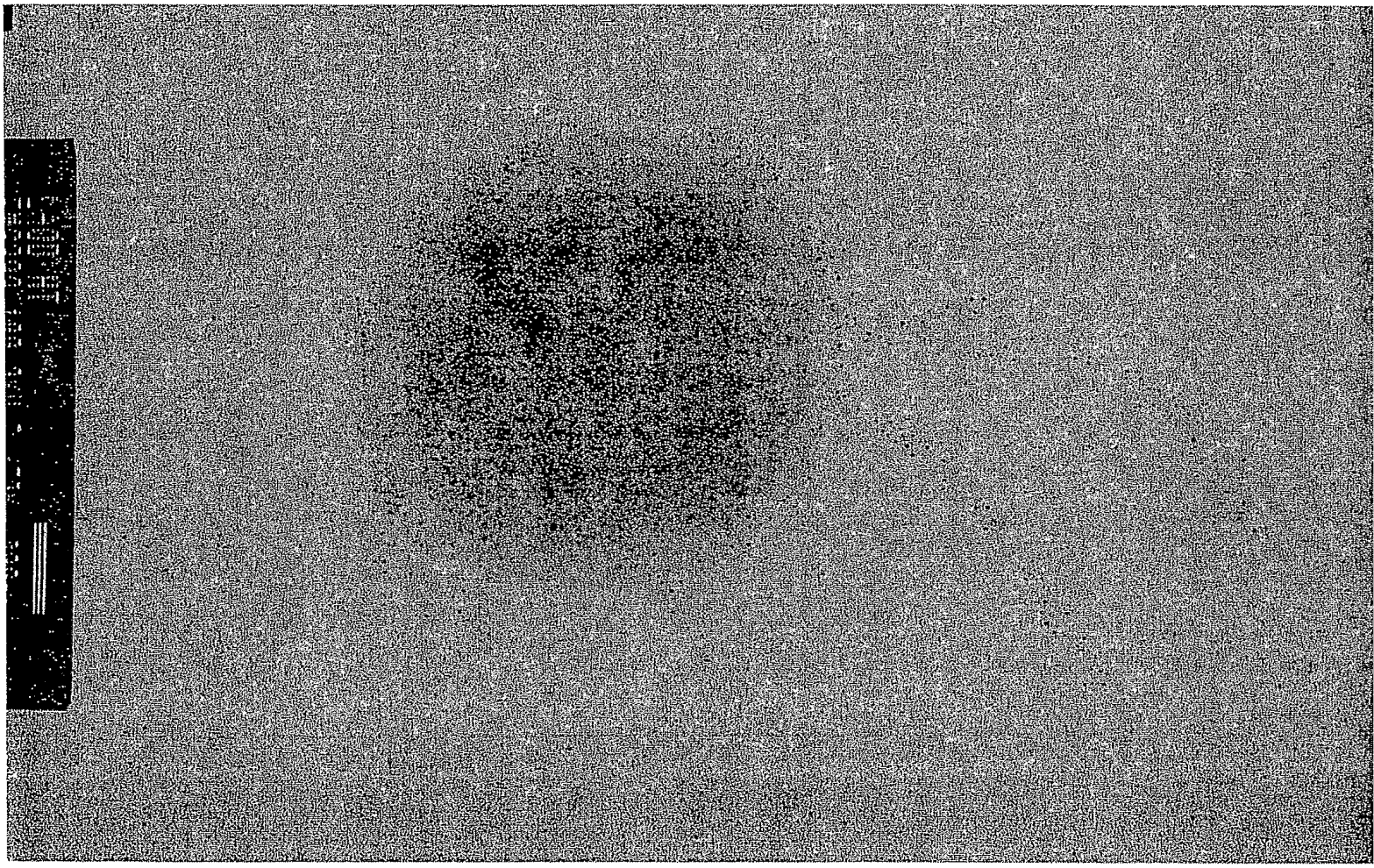
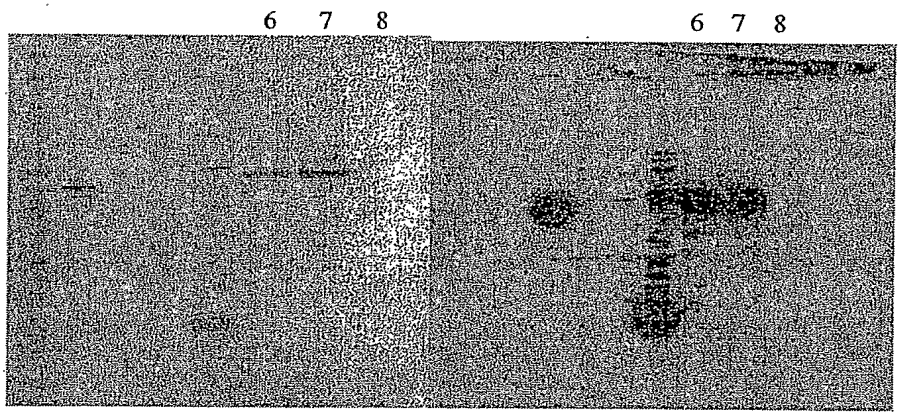


Figure 133



A B

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Figure 134

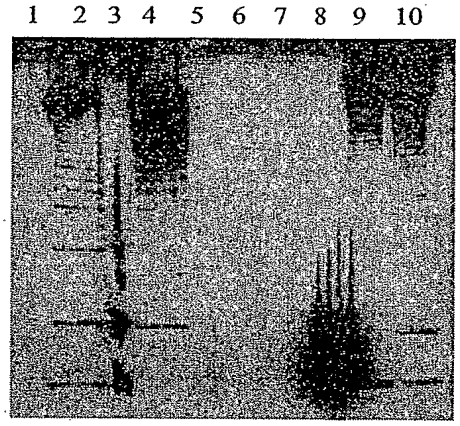
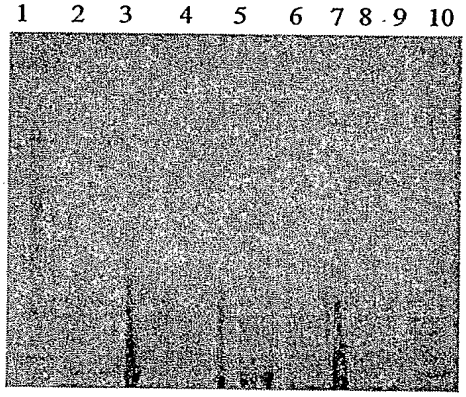


Figure 135



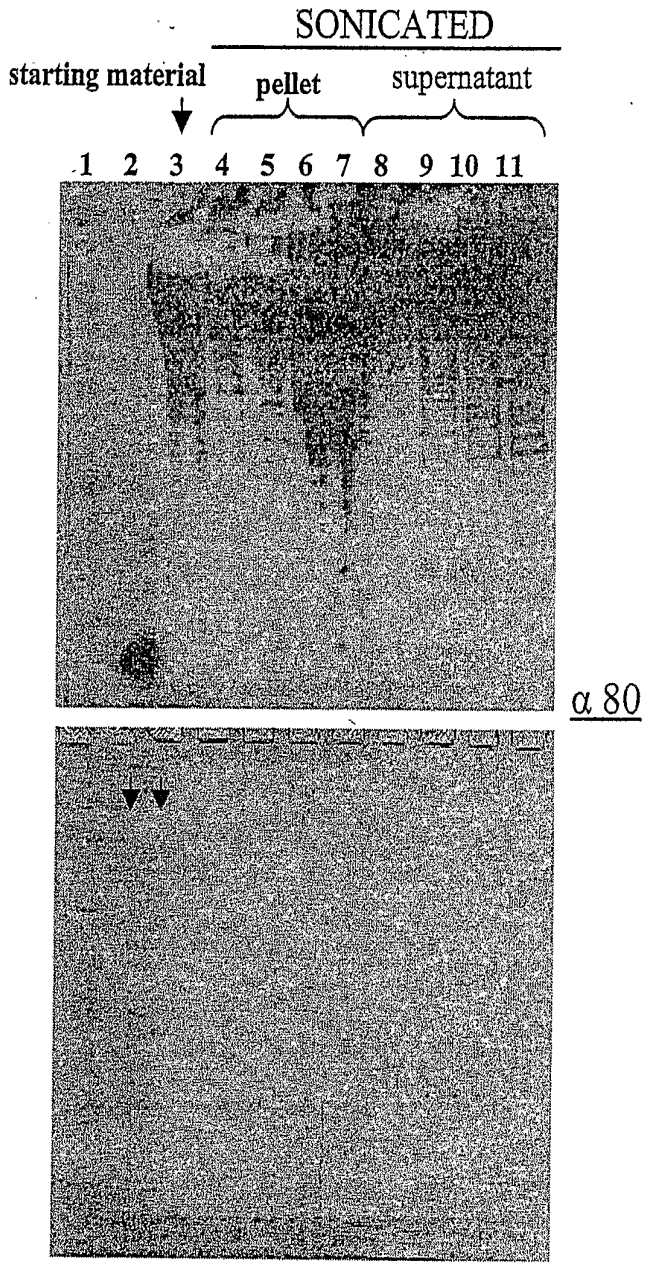
Pilus released by *Lactococcus* sonication

Figure 136A

1. MK
2. GBS 80 (10 ng)
3. L.lactis-AI1 **starting material** (30', 0.2 OD)
4. L.lactis-AI1 (not boiled, 0.33 OD)
5. L.lactis-AI1 (5', 0.33 OD)
6. L.lactis-AI1 (60' d, 0.33 OD)
7. L.lactis-AI1 (30', 0.33 OD)
8. Supernatant (not boiled, 2 OD)
9. Supernatant (5', 2 OD)
10. Supernatant (30', 2 OD)
11. Supernatant (60', 2 OD)

Figure 136B

1. MK
2. L.lactis-AI1 (30', 0.33 OD)
3. L.lactis-AI1 **starting material** (30', 0.2 OD)
4. L.lactis-AI1 (not boiled, 0.33 OD)
5. L.lactis-AI1 (5', 0.33 OD)
6. L.lactis-AI1 (60' d, 0.33 OD)
7. L.lactis-AI1 (30', 0.33 OD)
8. Supernatant (not boiled, 2 OD)
9. Supernatant (5', 2 OD)
10. Supernatant (30', 2 OD)
11. Supernatant (60', 2 OD)



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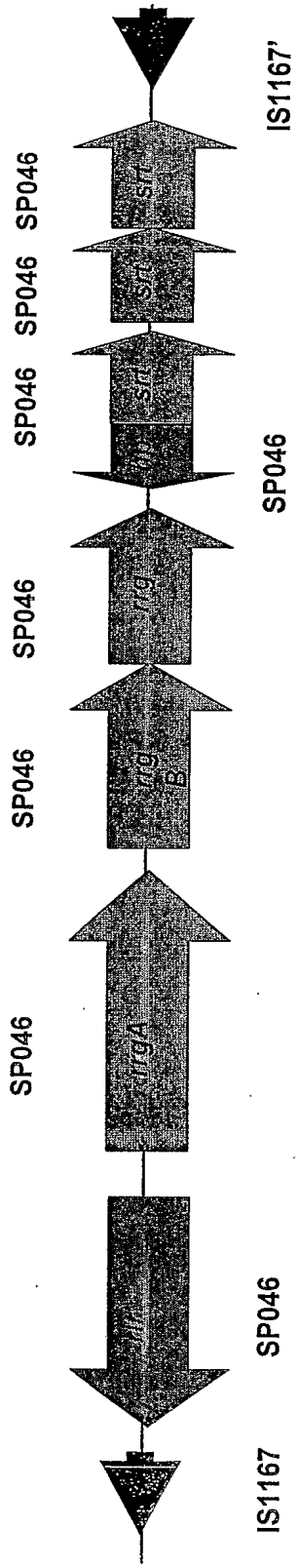

IS1167'
SP046
SP046
SP046
SP046
SP046
SP046
SP046
SP046
IS1167

Figure 137

PCT/US05/27239

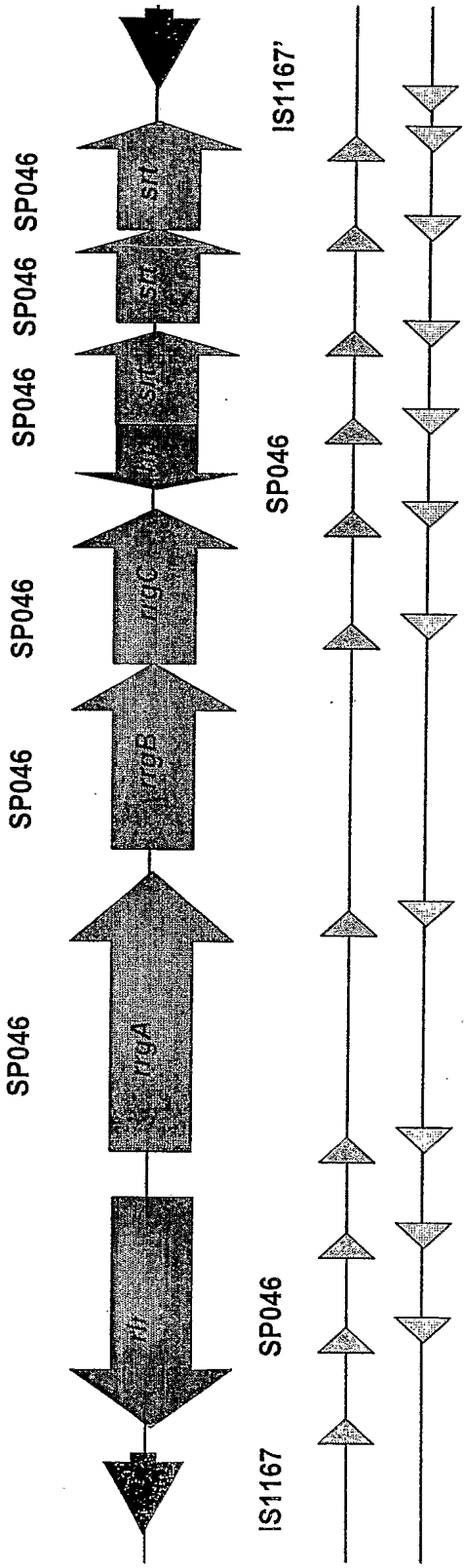
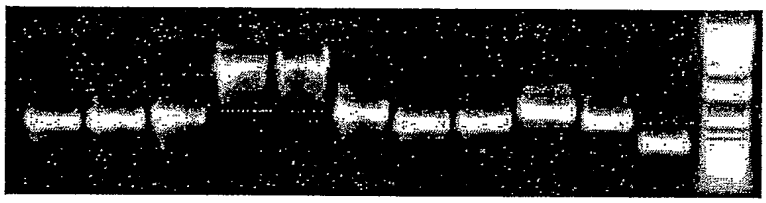


Figure 138

A



TIGR4

B

PCR product	contig_length _TIGR4	overlap
1	754	83
2	759	84
3	847	98
4	2550	99
5	2736	99
6	925	99
7	745	87
8	765	94
9	1008	94
10	802	64
11	461	

Figure 139

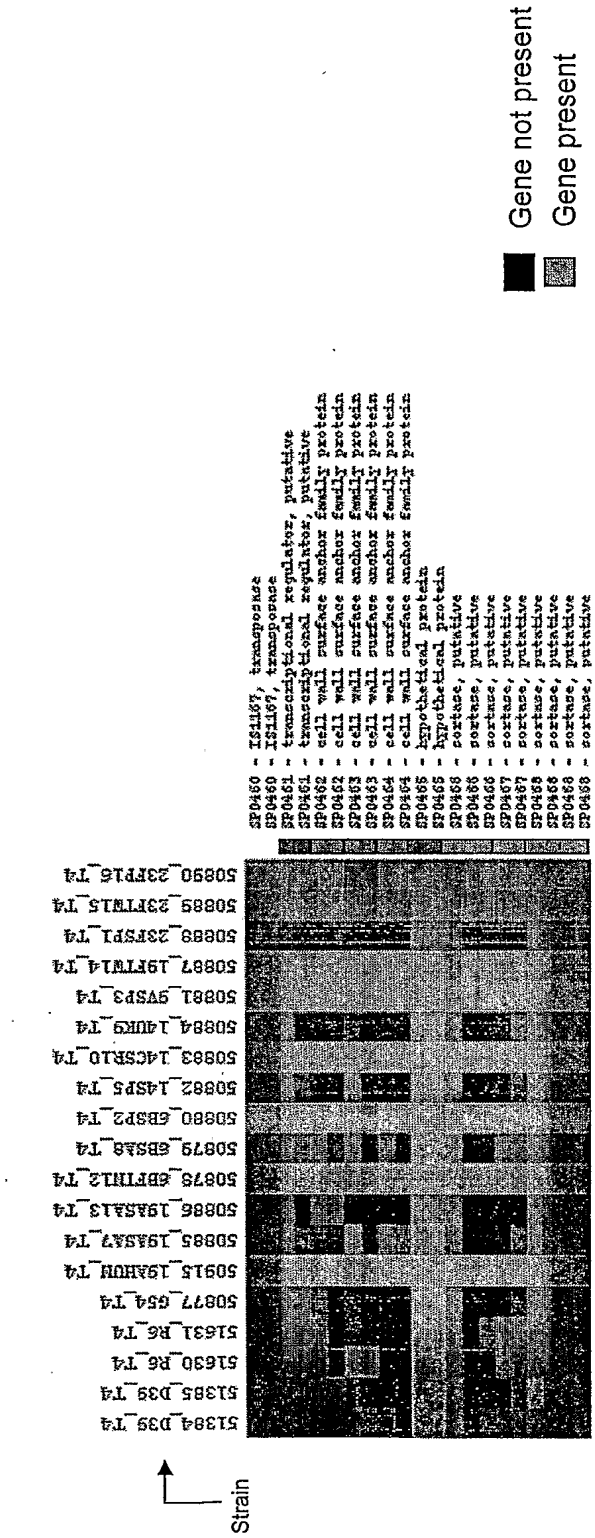

Gene not present
Gene present
SP0460 - IS1167, transposase
SP0460 - IS1167, transposase
SP0461 - transcriptional regulator, putative
SP0461 - transcriptional regulator, putative
SP0462 - cell wall surface anchor family protein
SP0462 - cell wall surface anchor family protein
SP0463 - cell wall surface anchor family protein
SP0463 - cell wall surface anchor family protein
SP0464 - cell wall surface anchor family protein
SP0464 - cell wall surface anchor family protein
SP0465 - hypothetical protein
SP0465 - hypothetical protein
SP0466 - sortase, putative
SP0466 - sortase, putative
SP0466 - sortase, putative
SP0466 - sortase, putative
SP0467 - sortase, putative
SP0467 - sortase, putative
SP0468 - sortase, putative
SP0468 - sortase, putative
SP0468 - sortase, putative
SP0468 - sortase, putative
S0890_23FP16_T4
S0889_23FTW15_T4
S0888_23FSP1_T4
S0887_19FTW14_T4
S0881_GVSP3_T4
S0884_14UKG_T4
S0883_14CSRL0_T4
S0882_14SP5_T4
S0880_6BSP2_T4
S0879_6BSA8_T4
S0878_6BFTW12_T4
S0886_19ASA13_T4
S0885_19ASA7_T4
S0915_19AHDU_T4
S0877_6S4_T4
S1631_R6_T4
S1630_R6_T4
S1385_D39_T4
S1384_D35_T4
Strain

Figure 140

Figure 141A

```
ORF2_14CSR      MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_19AH       MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_19FTW      MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_23FP       MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_23FTW      MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_670        MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_6BF        MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_6BSP       MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_TIGR       MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
ORF2_9VSP       MLNKYIEKRITDKITILNILLDIRSIELDELSTLTSLQSKSLLSILQELQETFEEELTFN
                ************************************************************

ORF2_14CSR      LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_19AH       LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_19FTW      LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_23FP       LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_23FTW      LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_670        LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_6BF        LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_6BSP       LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_TIGR       LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
ORF2_9VSP       LDTQQVQLIEHHSHQTNYYFHQLYNQSTILKILRFFLLQGNQSFNEFTQKEYISIATGYR
                ************************************************************

ORF2_14CSR      VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_19AH       VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_19FTW      VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_23FP       VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_23FTW      VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_670        VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_6BF        VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_6BSP       VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_TIGR       VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
ORF2_9VSP       VRQKCGLLLRSVGLDLVKNQVVGPEYRIRFLIALLQFHFGIEIYDLNDGSMDWVTHMIVQ
                ************************************************************

ORF2_14CSR      SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_19AH       SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_19FTW      SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_23FP       SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_23FTW      SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_670        SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_6BF        SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_6BSP       SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_TIGR       SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
ORF2_9VSP       SNSQLSHELLEITPDEYVHFSILVALTWKRREFPLEFPESKEFEKLKNLFMYPILMEHCQ
                ************************************************************

ORF2_14CSR      TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_19AH       TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_19FTW      TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_23FP       TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_23FTW      TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_670        TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_6BF        TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_6BSP       TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_TIGR       TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
ORF2_9VSP       TYLEPHANMTFTQEELDYIFLVYCSANSSFSKDKWNQEKKTHTIQLILQHTRGKHLLSKF
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Figure 141B

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ORF2_14CSR      KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_19AH       KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_19FTW      KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_23FP       KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_23FTW      KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_670        KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_6BF        KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_6BSP       KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_TIGR       KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
ORF2_9VSP       KNILGNDISNSLSFLTALTFLTRTFLFGLQNLVPYYNYYEHYGIESDKPLYHISKAIVQE
                ************************************************************

ORF2_14CSR      WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_19AH       WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_19FTW      WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_23FP       WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_23FTW      WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_670        WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_6BF        WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_6BSP       WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_TIGR       WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
ORF2_9VSP       WMTEQKIEGVIDQHRLYLFSLYLTETIFSSLPAIPIFIILNNQADVNLIKSIILRNFTDK
                ************************************************************

ORF2_14CSR      VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_19AH       VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_19FTW      VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_23FP       VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_23FTW      VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_670        VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_6BF        VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_6BSP       VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_TIGR       VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
ORF2_9VSP       VASVTGYNILISPPPSEEHLTEPLIIITTKEYLPYVKKQYPKGKHHFLTIALDLHVSQQR
                ************************************************************

ORF2_14CSR      LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_19AH       LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_19FTW      LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_23FP       LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_23FTW      LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_670        LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_6BF        LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_6BSP       LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_TIGR       LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
ORF2_9VSP       LIYQTIVDIRKEAFDKRVAMIAKKAHYLL
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Figure 142A

```
ORF3_19AH       MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_23FP       MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_14CSR      MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_670        MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_6BF        MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_6BSP       MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_19FTW      MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_9VSP       MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_23FTW      MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
ORF3_TIGR       MKKVRKIFQKAVAGLCCISQLTAFSSIVALAETPETSPAIGKVVIKETGEGGALLGDAVF
                ************************************************************

ORF3_19AH       ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_23FP       ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_14CSR      ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_670        ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_6BF        ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_6BSP       ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_19FTW      ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_9VSP       ELKNNTNGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQRTVEVEKNGRT
ORF3_23FTW      ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
ORF3_TIGR       ELKNNTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRT
                ******:***************************************** **********

ORF3_19AH       TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_23FP       TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_14CSR      TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_670        TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_6BF        TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_6BSP       TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_19FTW      TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_9VSP       TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_23FTW      TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
ORF3_TIGR       TVQGEQVENREEALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEG
                ************************************************************

ORF3_19AH       TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_23FP       TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_14CSR      TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_670        TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_6BF        TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_6BSP       TLSKRIYQVNNLDDNQYGIELTVSGKTTVETKEASTPLDVVILLDNSNSMSNIRHNHAHR
ORF3_19FTW      TLSKRIYQVNNLDDNQYGIELTVSGKTVYERKDKSVPLDVVILLDNSNSMSNIRNKNARR
ORF3_9VSP       TLSKRIYQVNNLDDNQYGIELTVSGKTVYERKDKSVPLDVVILLDNSNSMSNIRNKNARR
ORF3_23FTW      TLSKRIYQVNNLDDNQYGIELTVSGKTVYEQKDKSVPLDVVILLDNSNSMSNIRNKNARR
ORF3_TIGR       TLSKRIYQVNNLDDNQYGIELTVSGKTVYEQKDKSVPLDVVILLDNSNSMSNIRNKNARR
                ***************************. * *: *.******************:::*:*

ORF3_19AH       AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_23FP       AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_14CSR      AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_670        AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_6BF        AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_6BSP       AEKAGEATRALVDKITSNPDNRVALVTYGSTIFDGSEATVEKGVADANGKILNDSALWTF
ORF3_19FTW      AERAGEATRSLIDKITSDPENRVALVTYASTIFDGTEFTVEKGVADKNGKRLNDSLFWNY
ORF3_9VSP       AERAGEATRSLIDKITSDPENRVALVTYASTIFDGTEFTVEKGVADKNGKRLNDSLFWNY
ORF3_23FTW      AERAGEATRSLIDKITSDPENRVALVTYASTIFDGTEFTVEKGVADKNGKRLNDSLFWNY
ORF3_TIGR       AERAGEATRSLIDKITSDSENRVALVTYASTIFDGTEFTVEKGVADKNGKRLNDSLFWNY
                **:******:*:*****:.:********.******:* ******** *** **** :*.:
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Figure 142B

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ORF3_19AH       DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_23FP       DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_14CSR      DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_670        DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_6BF        DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_6BSP       DRTTFTAKTYNYSFLNLTSDPTDIQTIKDRIPSDAEELNKDKLMYQFGATFTQKALMTAD
ORF3_19FTW      DQTSFTTNTKDYSYLKLTNDKNDIVELKNKVPTEAEDHDGNRLMYQFGATFTQKALMKAD
ORF3_9VSP       DQTSFTTNTKDYSYLKLTNDKNDIVELKNKVPTEAEDHDGNRLMYQFGATFTQKALMKAD
ORF3_23FTW      DQTSFTTNTKDYSYLKLTNDKNDIVELKNKVPTEAEDHDGNRLMYQFGATFTQKALMKAD
ORF3_TIGR       DQTSFTTNTKDYSYLKLTNDKNDIVELKNKVPTEAEDHDGNRLMYQFGATFTQKALMKAD
                *:*:**::* :**:*:**.* .**  :*:::*::**: : ::****************.**

ORF3_19AH       DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_23FP       DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_14CSR      DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_670        DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_6BF        DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_6BSP       DILTKQARPNSKKVIFHITDGVPTMSYPINFKYTGTTQSYRTQLNNFKAKTPNSSGILLE
ORF3_19FTW      EILTQQARQNSQKVIFHITDGVPTMSYPINFNHATFAPSYQNQLNAFFSKSPNKDGILLS
ORF3_9VSP       EILTQQARQNSQKVIFHITDGVPTMSYPINFNHATFAPSYQNQLNVFFSKSPNKDGILLS
ORF3_23FTW      EILTQQARQNSQKVIFHITDGVPTMSYPINFNHATFAPSYQNQLNAFFSKSPNKDGILLS
ORF3_TIGR       EILTQQARQNSQKVIFHITDGVPTMSYPINFNHATFAPSYQNQLNAFFSKSPNKDGILLS
                :***:*** **:*********************:::  : **:.*** * :*:**..****.

ORF3_19AH       DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_23FP       DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_14CSR      DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_670        DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_6BF        DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_6BSP       DFVTWSADGEHKIVRGDGESYQMFTKKPVTDQYGVHQILSITSMEQRAKLVSAGYRFYGT
ORF3_19FTW      DFITQATSGEHTIVRGDGQSYQMFTDKTVYEK-GAPAAFPVK-PEKYSEMKAVGYAVIGD
ORF3_9VSP       DFITQATSGEHTIVRGDGQSYQMFTDKTVYEK-GAPAAFPVK-PEKYSEMKAVGYAVIGD
ORF3_23FTW      DFITQATSGEHTIVRGDGQSYQMFTDKTVYEK-GAPAAFPVK-PEKYSEMKAAGYAVIGD
ORF3_TIGR       DFITQATSGEHTIVRGDGQSYQMFTDKTVYEK-GAPAAFPVK-PEKYSEMKAAGYAVIGD
                **:* ::.***.******:******.*.* :: *.   :.:.  *: ::: :.** . *

ORF3_19AH       -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_23FP       -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_14CSR      -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_670        -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_6BF        -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_6BSP       -----DLYLYWRDSILAYPFNSSTDWITNHGDPTTWYYNGNMAQDGYDVFTVGVGVNGDP
ORF3_19FTW      PINGGYIWLNWRESILAYPFNSNTAKITNHGAPTRWYYNGNIAPDGYDVFTVGIGINGDP
ORF3_9VSP       PINGGYIWLNWRESILAYPFNSNTAKITNHGDPTRWYYNGNIAPDGYDVFTVGIGINGDP
ORF3_23FTW      PINGGYIWLNWRESILAYPFNSNTAKITNHGDPTRWYYNGNIAPDGYDVFTVGIGINGDP
ORF3_TIGR       PINGGYIWLNWRESILAYPFNSNTAKITNHGDPTRWYYNGNIAPDGYDVFTVGIGINGDP
                      ::* **:*********.*  ***** ** ******:* *********:*:****

ORF3_19AH       GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_23FP       GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_14CSR      GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_670        GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_6BF        GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_6BSP       GTDEATATRFMQSISSSPDNYTNVADPSQILQELNRYFYTIVNEKKSIENGTITDPMGEL
ORF3_19FTW      GTDEATATSFMQSISSKPENYTNVTDTTKILEQLNRYFHTIVTEKKSIENGTITDPMGEL
ORF3_9VSP       GTDEATATSFMQSISSKPENYTNVTDTTKILEQLNRYFHTIVTEKKSIENGTITDPMGEL
ORF3_23FTW      GTDEATATSFMQSISSKPENYTNVTDTTKILEQLNRYFHTIVTEKKSIENGTITDPMGEL
ORF3_TIGR       GTDEATATSFMQSISSKPENYTNVTDTTKILEQLNRYFHTIVTEKKSIENGTITDPMGEL
                ******** *******.*:*****:*.::**::*****:***.****************
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Figure 142C

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ORF3_19AH       IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_23FP       IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_14CSR      IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_670        IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_6BF        IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_6BSP       IDFQLGADGRFDPADYTLTANDGSSLVNNVPTGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_19FTW      IDLQLGTDGRFDPADYTLTANDGSRLENGQAVGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_9VSP       IDLQLGTDGRFDPADYTLTANDGSRLENGQAVGGPQNDGGLLKNAKVFYDTTEKRIRVTG
ORF3_23FTW      IDLQLGTDGRFDPADYTLTANDGSRLENGQAVGGPQNDGGLLKNAKVLYDTTEKRIRVTG
ORF3_TIGR       IDLQLGTDGRFDPADYTLTANDGSRLENGQAVGGPQNDGGLLKNAKVLYDTTEKRIRVTG
                **:***:***************** * *. ..***************:************

ORF3_19AH       LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_23FP       LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_14CSR      LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_670        LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_6BF        LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_6BSP       LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_19FTW      LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_9VSP       LYLGTGEKVTLTYNVRLNDQFVSNKFYDTNGRTTLHPKEVEKNTVRDFPIPKIRDVRKYP
ORF3_23FTW      LYLGTDEKVTLTYNVRLNDEFVSNKFYDTNGRTTLHPKEVEQNTVRDFPIPKIRDVRKYP
ORF3_TIGR       LYLGTDEKVTLTYNVRLNDEFVSNKFYDTNGRTTLHPKEVEQNTVRDFPIPKIRDVRKYP
                *****.*************:**********************:******************

ORF3_19AH       EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_23FP       EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_14CSR      EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_670        EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_6BF        EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_6BSP       EITIPKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_19FTW      AITIAKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_9VSP       AITIAKEKKLGEIEFIKINKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_23FTW      EITISKEKKLGDIEFIKVNKNDKKPLRDAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
ORF3_TIGR       EITISKEKKLGDIEFIKVNKNDKKPLRGAVFSLQKQHPDYPDIYGAIDQNGTYQNVRTGE
                 ***.******:*****:*********.**********************************

ORF3_19AH       DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_23FP       DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_14CSR      DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_670        DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_6BF        DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_6BSP       DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_19FTW      DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_9VSP       DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_23FTW      DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
ORF3_TIGR       DGKLTFKNLSDGKYTLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQDIPAGYEF
                ************************************************************

ORF3_19AH       TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKNP
ORF3_23FP       TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKNP
ORF3_14CSR      TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_670        TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_6BF        TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_6BSP       TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_19FTW      TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_9VSP       TNDKHYITNEPIPPKREYPRTGGIGMLLFYLIGCMMMGGVLLYTRKHP
ORF3_23FTW      TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
ORF3_TIGR       TNDKHYITNEPIPPKREYPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP
                *************************** ******************:*
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Figure 143A

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ORF4_6BF        MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_6BSP       MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_670        MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_14CSR      MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_19AH       MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_23FP       MKSINKFLTMLAALLLTASSLFSAATVFAADNVSTAPDAVTKTLTIHKLLLSEDDLKTWD
ORF4_23FTW      MKSINKFLTILAALLLTVSSLFSAATVFAAEQK-------TKTLTVHKLLMTDQELDAWN
ORF4_19FTW      MKSINKFLTMLAALLLTASSLFSAATVFAAGTT-------TTSVTVHKLLATDGDMDKIA
ORF4_9VSP       MKSINKFLTMLAALLLTASSLFSAATVFAAGTT-------TTSVTVHKLLATDGDMDKIA
ORF4_TIGR       MKSINKFLTMLAALLLTASSLFSAATVFAAGTT-------TTSVTVHKLLATDGDMDKIA
                *********:*******.************          *.::*:**** :: ::.

ORF4_6BF        TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_6BSP       TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_670        TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_14CSR      TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_19AH       TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_23FP       TNGPK--GYDGTQ-----SSLKDLTGVVA--EEIPNVYFELQKYNLTDGKEKENLKDD-S
ORF4_23FTW      SDAITTAGYDGSQN---FEQFKQLQGVPQGVTEISGVAFELQSYTGPQGKEQENLTND-A
ORF4_19FTW      NELETG-NYAGNKVGVLPANAKEIAGVMFVWTNTNNEIIDENGQTLGVNIDPQTFKLSGA
ORF4_9VSP       NELETG-NYAGNKVGVLPANAKEIAGVMFVWTNTNNEIIDENGQTLGVNIDPQTFKLSGA
ORF4_TIGR       NELETG-NYAGNKVGVLPANAKEIAGVMFVWTNTNNEIIDENGQTLGVNIDPQTFKLSGA
                .:  .  .* *.:      . *:: **    :  .  :: :  .   . : :.:. . :

ORF4_6BF        KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_6BSP       KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_670        KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_14CSR      KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_19AH       KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_23FP       KWTTVHGGLTTKDGLKIETSTLKG-VYRIREDRTKTTYVGPNGQVLTGSKAVPALVTLPL
ORF4_23FTW      VWTAVNKGVTTETGVKFDTEVLQG-TYRLVEVRKESTYVGPNGKVLTGMKAVPALITLPL
ORF4_19FTW      MPATAMKKLTEAEGAKFNTANLPAAKYKIYEIHSLSTYVGEDGATLTGSKAVPIEIELPL
ORF4_9VSP       MPATAMKKLTEAEGAKFNTANLPAAKYKIYEIHSLSTYVGEDGATLTGSKAVPIEIELPL
ORF4_TIGR       MPATAMKKLTEAEGAKFNTANLPAAKYKIYEIHSLSTYVGEDGATLTGSKAVPIEIELPL
                  ::.   :*   * *::*  * .  *:: * :. :**** :* .*** ****  : ***

ORF4_6BF        VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_6BSP       VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_670        VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_14CSR      VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_19AH       VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_23FP       VNNNGTVIDAHVFPKNSYNKPVVDKRIADTLNYND-------QNGLSIGTKIPYVVNTTI
ORF4_23FTW      VNQNGVVENAHVYPKNSEDKPTATKTFDTAAGFVDP-----GEKGLAIGTKVPYIVTTTI
ORF4_19FTW      ND----VVDAHVYPKNTEAKPKIDKDFKGKANPDTPRVDKDTPVNHQVGDVVEYEIVTKI
ORF4_9VSP       ND----VVDAHVYPKNTEAKPKIDKDFKGKANPDTPRVDKDTPVNHQVGDVVEYEIVTKI
ORF4_TIGR       ND----VVDAHVYPKNTEAKPKIDKDFKGKANPDTPRVDKDTPVNHQVGDVVEYEIVTKI
                 :    * :***:***:  **   * :    .             .  :*  : * : *.*

ORF4_6BF        PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGNNGFNLKLTEAGLAK
ORF4_6BSP       PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGNNGFNLKLTEAGLAK
ORF4_670        PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGNNGFNLKLTEAGLAK
ORF4_14CSR      PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGNNGFNLKLTEAGLAK
ORF4_19AH       PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGXNGFNLKLTEAGLAK
ORF4_23FP       PSNATFATSFWSDEMTEGLTYN-EDVTITLNNVAMDQADYEVTKGINGFNLKLTEAGLAK
ORF4_23FTW      PKNSTLATAFWSDEMTEGLDYN-GDVVVNYNGQPLDNSHYTLEAGHNGFILKLNEKGLEA
ORF4_19FTW      PALANYATANWSDRMTEGLAFNKGTVKVTVDDVALEAGDYALTEVATGFDLKLTDAGLAK
ORF4_9VSP       PALANYATANWSDRMTEGLAFNKGTVKVTVDDVALEAGDYALTEVATGFDLKLTDAGLAK
ORF4_TIGR       PALANYATANWSDRMTEGLAFNKGTVKVTVDDVALEAGDYALTEVATGFDLKLTDAGLAK
                *  :. **: ***.***** :*   * :. :. .:: ..* :    .** ***.: **
```

Figure 143B

```
ORF4_6BF        INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_6BSP       INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_670        INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_14CSR      INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_19AH       INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_23FP       INGKDADQKIQITYSATLNSLAVADIPESNDITYHYGNHQDHGNTPKPTKPN-NGQITVT
ORF4_23FTW      INGKDAEATITLKYTATLNALAVADVPEANDVTFHYGNNPGHGNTPKPNKPK-NGELTIT
ORF4_19FTW      VNDQNAEKTVKITYSATLNDKAIVEVPESNDVTFNYGNNPDHGNTPKPNKPNENGDLTLT
ORF4_9VSP       VNDQNAEKTVKITYSATLNDKAIVEVPESNDVTFNYGNNPDHGNTPKPNKPNENGDLTLT
ORF4_TIGR       VNDQNAEKTVKITYSATLNDKAIVEVPESNDVTFNYGNNPDHGNTPKPNKPNENGDLTLT
                :*.::*: .: :.*:**** *:.::**:**:*::***: .*******.**: **::*:*

ORF4_6BF        KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_6BSP       KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_670        KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_14CSR      KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_19AH       KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_23FP       KTWDSQPAP---EGVKATVQLVNAKTGEKVGAP------VELSENNWTYTWSGLDNSIEY
ORF4_23FTW      KTWADAKDAPI-AGVEVTFDLVNAQTGEVVKVPGHETGIVLNQTNNWTFTATGLDNNTEY
ORF4_19FTW      KTWVDATGAPIPAGAEATFDLVNAQTGKVVQTV-------TLTTDKNTVTVNGLDKNTEY
ORF4_9VSP       KTWVDATGAPIPAGAEATFDLVNAQTGKVVQTV-------TLTTDKNTVTVNGLDKNTEY
ORF4_TIGR       KTWVDATGAPIPAGAEATFDLVNAQTGKVVQTV-------TLTTDKNTVTVNGLDKNTEY
                *** .   .    *.:.*.:****:**: * .           :: * * .***:. **

ORF4_6BF        K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINPEEPRVKTYGKKFVKVDQKDTRL
ORF4_6BSP       K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINPEEPRVKTYGKKFVKVDQKDTRL
ORF4_670        K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINPEEPRVKTYGKKFVKVDQKDTRL
ORF4_14CSR      K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINPEEPRVKTYGKKFVKVDQKDTRL
ORF4_19AH       K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINPEEPRVKTYGKKFVKVDQKDTRL
ORF4_23FP       K-VEEEYNGYSAEY-TVESKGKLGVKNWKDNNPAPINLEEPRVKTYGKKFVKVDQKDTRL
ORF4_23FTW      KFVERTIKGYSADYQTITETGKIAVKNWKDENPEPINPEEPRVKTYGKKFVKVDQKDERL
ORF4_19FTW      KFVERSIKGYSADYQEITTAGEIAVKNWKDENPKPLDPTEPKVVTYGKKFVKVNDKDNRL
ORF4_9VSP       KFVERSIKGYSADYQEITTAGEIAVKNWKDENPKPLDPTEPKVVTYGKKFVKVNDKDNRL
ORF4_TIGR       KFVERSIKGYSADYQEITTAGEIAVKNWKDENPKPLDPTEPKVVTYGKKFVKVNDKDNRL
                * **.  :****:*  :   *::.******:** *::  **:* *********::** **

ORF4_6BF        ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_6BSP       ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_670        ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_14CSR      ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_19AH       ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_23FP       ENAQFVVKKADSN-KYIAFKSTAQQAADEKAAATAKQKLDAAVAAY---TNAADKQAAQA
ORF4_23FTW      KEAQFVVKNEQG--KYLALKSAAQQAVNEKAAAEAKQALDAAIAAY---TNAADKNAAQA
ORF4_19FTW      AGAEFVIANADNAGQYLARKADKVSQEEKQLVVTTKDALDRAVAAYNALTAQQQTQQEKE
ORF4_9VSP       AGAEFVIANADNAGQYLARKADKVSQEEKQLVVTTKDALDRAVAAYNALTAQQQTQQEKE
ORF4_TIGR       AGAEFVIANADNAGQYLARKADKVSQEEKQLVVTTKDALDRAVAAYNALTAQQQTQQEKE
                  *:**: : :.  :*:* *:   . .::: .. :*: ** *:***   *   :.:  :

ORF4_6BF        LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_6BSP       LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_670        LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_14CSR      LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_19AH       LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_23FP       LVDQAQQEYNVAYKEAKFGYVEVAGKDE--AMVLTSNTDGQFQISGLAAGTVKLEEIKAE
ORF4_23FTW      VVDAAQKTYNDNYRAARFGYVEVERKED--ALVLTSNTDGQFQISGLAAGSVKLEEIKAE
ORF4_19FTW      KVDKAQAAYNAAVIAANNAFEWVADKDNENVVKLVSDAQGRFEITGLLAGTVKLEEIKQE
ORF4_9VSP       KVDKAQAAYNAAVIAANNAFEWVADKDNENVVKLVSDAQGRFEITGLLAGTVKLEEIKQE
ORF4_TIGR       KVDKAQAAYNAAVIAANNAFEWVADKDNENVVKLVSDAQGRFEITGLLAGTVKLEEIKQE
                 ** **  **     *. .:  *  *::  .: *.*:::*:*:*:** **:* *** * *
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PCT/US05/27239

Figure 143C

```
ORF4_6BF        EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_6BSP       EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_670        EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_14CSR      EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_19AH       EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_23FP       EGTAKIDD-VEFVVGAGSWNQG--EFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_23FTW      AGTAKLGD-VKFEVGAGSWNQG--DFNYLKDVQKNDATKVVNKKITTPQTGGIGTIIFAV
ORF4_19FTW      AGTALLTSRQKFEVTATSYSATGQGIEYTAGSGKDDATKVVNKKITTPQTGGIGTIIFAV
ORF4_9VSP       AGTALLTSRQKFEVTATSYSATGQGIEYTAGSGKDDATKVVNKKITTPQTGGIGTIIFAV
ORF4_TIGR       AGTALLTSRQKFEVTATSYSATGQGIEYTAGSGKDDATKVVNKKITTPQTGGIGTIIFAV
                 *:* : .  :* * * *:.     ::*  .  *:*************************

ORF4_6BF        AGAAIMGIAVYAYVKNNKDEDQLA
ORF4_6BSP       AGAAIMGIAVYAYVKNNKDEDQLA
ORF4_670        AGAAIMGIAVYAYVKNNKDEDQLA
ORF4_14CSR      AGAAIMGIAVYAYVKNNKDEDQLA
ORF4_19AH       AGAAIMGIAVYAYVKNNKDEDQLA
ORF4_23FP       AGAVIMGIAVYAYVKNNKDEDQLA
ORF4_23FTW      AGAVIMGIAVYAYVKNNKDEDQLA
ORF4_19FTW      AGAVIMGIAVYAYVKNNKDEDQLA
ORF4_9VSP       AGAVIMGIAVYAYVKNNKDEDQLA
ORF4_TIGR       AGAAIMGIAVYAYVKNNKDEDQLA
                ***.******************
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PCT/US05/27239

Figure 144A

```
ORF5_6BSP       ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_TIGR       ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_6BF        ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_670        ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_19AH       ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_14CSR      ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_19FTW      ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_23FTW      ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_9VSP       MTMQKMQKMQKMQKMQKMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
ORF5_23FP       ----------MTMQKMQKMISRIFFVMALCFSLVWGAHAVQAQEDHTLVLQLENYQEV
                         .*******************************************

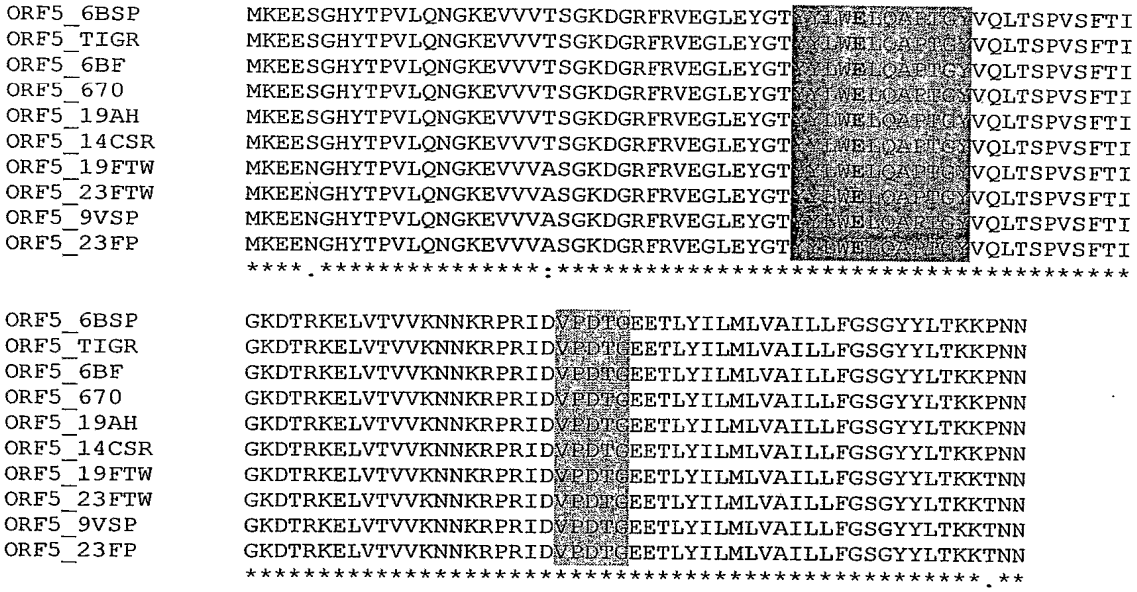
ORF5_6BSP       VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_TIGR       VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_6BF        VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_670        VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_19AH       VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_14CSR      VSQLPSRDGHRLQVWKLDDSYSYDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_19FTW      VSQLPSRDGHRLQVWKLDDSYSYDNRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_23FTW      VSQLPSRDGHRLQVWKLDDSYSYDNRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_9VSP       VSQLPSRDGHRLQVWKLDDSYSYDNRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
ORF5_23FP       VSQLPSRDGHRLQVWKLDDSYSYDNRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEV
                ************************:***********************************

ORF5_6BSP       SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_TIGR       SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_6BF        SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_670        SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_19AH       SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_14CSR      SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDH
ORF5_19FTW      SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKADTVTTKVKLIKVDQDH
ORF5_23FTW      SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKADTVTTKVKLIKVDQDH
ORF5_9VSP       SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKADTVTTKVKLIKVDQDH
ORF5_23FP       SHIPNGLYYVRSIIQTDAVSYPAEFLFEMTDQTVEPLVIVAKKADTVTTKVKLIKVDQDH
                *******************************************:**:**************

ORF5_6BSP       NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_TIGR       NRLEGVGFKLVSVARDVSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_6BF        NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_670        NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_19AH       NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_14CSR      NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIFVTNLPLGNYRF
ORF5_19FTW      NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIVVTNLPLGTYRF
ORF5_23FTW      NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIVVTNLPLGTYRF
ORF5_9VSP       NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIVVTNLPLGTYRF
ORF5_23FP       NRLEGVGFKLVSVARDGSEKEVPLIGEYRYSSSGQVGRTLYTDKNGEIVVTNLPLGTYRF
                **************** ********************************.*******.***

ORF5_6BSP       KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_TIGR       KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_6BF        KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_670        KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_19AH       KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_14CSR      KEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_19FTW      KEVEPLAGYTVTTMDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_23FTW      KEVEPLAGYTVTTMDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_9VSP       KEVEPLAGYTVTTMDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
ORF5_23FP       KEVEPLAGYAVTTMDTDVQLVDHQLVTITVVNQKLPRGNVDFMKVDGRTNTSLQGAMFKV
                *********:***:*********************************************
```

Figure 144B


ORF5_6BSP MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_TIGR MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_6BF MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_670 MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_19AH MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_14CSR MKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_19FTW MKEENGHYTPVLQNGKEVVVASGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_23FTW MKEENGHYTPVLQNGKEVVVASGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_9VSP MKEENGHYTPVLQNGKEVVVASGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI
ORF5_23FP MKEENGHYTPVLQNGKEVVVASGKDGRFRVEGLEYGTWWEIQAEIGWVQLTSPVSFTI

ORF5_6BSP GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_TIGR GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_6BF GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_670 GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_19AH GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_14CSR GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKPNN
ORF5_19FTW GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKTNN
ORF5_23FTW GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKTNN
ORF5_9VSP GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKTNN
ORF5_23FP GKDTRKELVTVVKNNKRPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKTNN

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Figure 145A

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ORF6_23FTW      MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_TIGR       MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_6BSP       MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_6BF        MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_670        MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_19AH       MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_14CSR      MLIKMVKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_23FP       MLIKMAKTKKQKRNNLLLGVVFFIGIAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_9VSP       MLIKMAKTKKQKRNNLLLGVVFFIGIAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
ORF6_19FTW      MLIKMAKTKKQKRNNLLLGVVFFIGMAVMAYPLVSRLYYRVESNQQIADFDKEKATLDEA
                *****.*******************:**********************************

ORF6_23FTW      DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_TIGR       DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_6BSP       DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_6BF        DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_670        DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_19AH       DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_14CSR      DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPVIDVDLP
ORF6_23FP       DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPAIDVDLP
ORF6_9VSP       DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPAIDVDLP
ORF6_19FTW      DIDERMKLAQAFNDSLNNVVSGDPWSEEMKKKGRAEYARMLEIHERMGHVEIPAIDVDLP
                **************************************************.******

ORF6_23FTW      VYAGTAEEVLQQGAGQLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_TIGR       VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_6BSP       VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_6BF        VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_670        VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_19AH       VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_14CSR      VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_23FP       VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_9VSP       VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
ORF6_19FTW      VYAGTAEEVLQQGAGHLEGTSLPIGGNSTHAVITAHTGLPTAKMFTDLTKLKVGDKFYVH
                ***************:******************************************

ORF6_23FTW      NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_TIGR       NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_6BSP       NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_6BF        NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_670        NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_19AH       NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_14CSR      NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_23FP       NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_9VSP       NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
ORF6_19FTW      NIKEVMAYQVDQVKVIEPTNFDDLLIVPGHDYVTLLTCTPYMINTHRLLVRGHRIPYVAE
                ************************************************************

ORF6_23FTW      VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_TIGR       VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_6BSP       VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_6BF        VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_670        VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_19AH       VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_14CSR      VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKKQPEKALKALKAARKEVKVE
ORF6_23FP       VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKRQSERALKALKEATKEVKVE
ORF6_9VSP       VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKRQSERALKALKEATKEVKVE
ORF6_19FTW      VEEEFIAANKLSHLYRYLFYVAVGLIVILLWIIRRLRKKKRQSERALKALKEATKEVKVE
                ****************************************:*.*:****** * ******
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Figure 145B

ORF6_23FTW	DGQQ
ORF6_TIGR	DGQQ
ORF6_6BSP	DGQQ
ORF6_6BF	DGQQ
ORF6_670	DGQQ
ORF6_19AH	DGQQ
ORF6_14CSR	DGQQ
ORF6_23FP	DE--
ORF6_9VSP	DE--
ORF6_19FTW	DE-

Figure 146

```
ORF7_14CSR      MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_19AH       MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_6BF        MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_6BSP       MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_670        MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_23FTW      MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_23FP       MSKSRYSRKKSVKKKKNPFILLLIFLVGLAVAMYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_9VSP       MSKSRYSRKKSVKKKKNPFILLLIFLVGLAVAMYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_19FTW      MSKSRYSRKKSVKKKKNPFILLLIFLVGLAVAMYPLVSRYYYRIESNEVIKEFDETVSQM
ORF7_TIGR       MDNSRRSRKKGTKKKKHPLILLLIFLVGFAVAIYPLVSRYYYRIESNEVIKEFDETVSQM
                *.:** **** ..****:*:*********:***:**************************

ORF7_14CSR      DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_19AH       DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_6BF        DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_6BSP       DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_670        DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_23FTW      DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_23FP       DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_9VSP       DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
ORF7_19FTW      DKAELEERWRLAQAFNATLKPSEILDPFTDQEKKQGVSEYANMLKVHERIGYVEIPAIEQ
ORF7_TIGR       DKAELEERWRLAQAFNATLKPSEILDPFTEQEKKKGVSEYANMLKVHERIGYVEIPAIDQ
                ******************************:****:************************:*

ORF7_14CSR      EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_19AH       EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_6BF        EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_6BSP       EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_670        EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_23FTW      EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDVF
ORF7_23FP       EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDIF
ORF7_9VSP       EIPMYVGTSEEILQKGAGLLEGASLPVGGENTHTVVTAHRGLPTAELFSQLDKMKKGDIF
ORF7_19FTW      EIPMYVGTSEDILQKGAGLLEGASLPVGGENTHTVITAHRGLPTAELFSQLDKMKKGDIF
ORF7_TIGR       EIPMYVGTSEDILQKGAGLLEGASLPVGGENTHTVITAHRGLPTAELFSQLDKMKKGDIF
                **********:************************:**********************:*

ORF7_14CSR      YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_19AH       YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_6BF        YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_6BSP       YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_670        YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_23FTW      YLHVLDQVLAYQVDQILTVEPNDFEPVLIQHGKDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_23FP       YLHVLDQVLAYQVDQIVTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_9VSP       YLHVLDQVLAYQVDQIVTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_19FTW      YLHVLDQVLAYQVDQIVTVEPNDFEPVLIQHGQDYATLLTCTPYMINSHRLLVRGKRIPY
ORF7_TIGR       YLHVLDQVLAYQVDQIVTVEPNDFEPVLIQHGEDYATLLTCTPYMINSHRLLVRGKRIPY
                ****************:***************:**************************

ORF7_14CSR      TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_19AH       TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_6BF        TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_6BSP       TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_670        TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_23FTW      TAPIAERNRAVRERGQFWLWLLLAALVMILVLSYGVYRHRRIVKGLEKQLEEHHVKG
ORF7_23FP       TAPIAERNRAVRERGQFWLWLLLGAMAVILLLLYRVYRNRRIVKGLEKQLEGRHVKD
ORF7_9VSP       TAPIAERNRAVRERGQFWLWLLLGAMAVILLLLYRVYRNRRIVKGLEKQLEGRHVKD
ORF7_19FTW      TAPIAERNRAVRERGQFWLWLLLGAMAVILLLLYRVYRNRRIVKGLEKQLEGRHVKD
ORF7_TIGR       TAPIAERNRAVRERGQFWLWLLLGAMAVILLLLYRVYRNRRIVKGLEKQLEGRHVKD
                ************************.*:.:**:* * ***:************* :***.
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Figure 147

```
ORF8_14CSR      MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_19AH       MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_23FTW      MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_670        MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_6BF        MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_6BSP       MSKAKLQKLLGYLLMLVALVIPVYCFGQMVLQSLGQVKGHEIFSESVTADSYQEQLQRSL
ORF8_19FTW      MSRTKLRALLGYLLMLVACLIPIYCFGQMVLQSLGQVKGHATFVKSMTTEMYQEQQNHSL
ORF8_23FP       MSRTKLRALLGYLLMLVACLIPIYCFGQMVLQSLGQVKGHATFVKSMTTEMYQEQQNHSL
ORF8_9VSP       MSRTKLRALLGYLLMLVACLIPIYCFGQMVLQSLGQVKGHATFVKSMTTEMYQEQQNHSL
ORF8_TIGR       MSRTKLRALLGYLLMLVACLIPIYCFGQMVLQSLGQVKGHATFVKSMTTEMYQEQQNHSL
                **::**: ********** :**:*****************  * :*:*:: **** ::**

ORF8_14CSR      DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_19AH       DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_23FTW      DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_670        DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_6BF        DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_6BSP       DYNQRLDSQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLAM
ORF8_19FTW      AYNQRLASQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLGM
ORF8_23FP       AYNQRLASQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLGM
ORF8_9VSP       AYNQRLASQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLGM
ORF8_TIGR       AYNQRLASQNRIVDPFLAEGYEVNYQVSDDPDAVYGYLSIPSLEIMEPVYLGADYHHLGM
                 ***** ***************************************************.*

ORF8_14CSR      GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_19AH       GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_23FTW      GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_670        GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_6BF        GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_6BSP       GLAHVDGTPLPVEGKGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_19FTW      GLAHVDGTPLPLDGTGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_23FP       GLAHVDGTPLPLDGTGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_9VSP       GLAHVDGTPLPLDGTGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
ORF8_TIGR       GLAHVDGTPLPLDGTGIRSVIAGHRAEPSHVFFRHLDQLKVGDALYYDNGQEIVEYQMMD
                ***********::*.**********************************************

ORF8_14CSR      TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_19AH       TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_23FTW      TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_670        TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_6BF        TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_6BSP       TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_19FTW      TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_23FP       TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_9VSP       TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
ORF8_TIGR       TEIILPSEWEKLESVSSKNIMTLITCDPIPTFNKRLLVNFERVAVYQKSDPQTAAVARVA
                ************************************************************

ORF8_14CSR      FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_19AH       FTKEGQSVSRVATSQWLYRGLVVLAFMGILFVLWKLARLLRGK
ORF8_23FTW      FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_670        FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_6BF        FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_6BSP       FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_19FTW      FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_23FP       FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_9VSP       FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
ORF8_TIGR       FTKEGQSVSRVATSQWLYRGLVVLAFLGILFVLWKLARLLRGK
                **************************:***************
```

RrgA, LPXTG
99,9-100% id
98-100%
83%I
ORF3 14CSR
ORF3 19AH
ORF3 23FP
ORF3 670
ORF3 6BF
ORF3 6BSP
ORF3 19FTW
ORF3 9VSP
ORF3 23FTW
ORF3 TIGR
0.1

Figure 148

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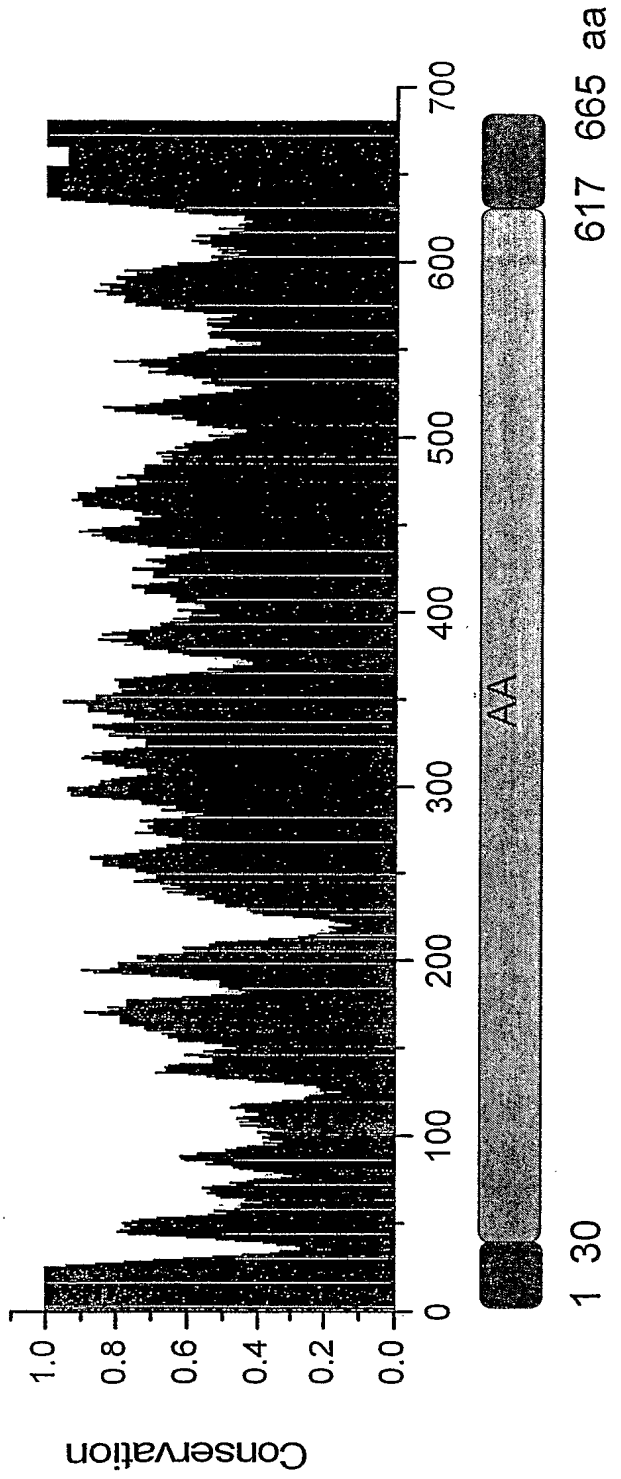


Figure 149

A

*MLNRETHMKKVRKIFQKAVAGLCCISQLTAFSSIVALA**ETPETSPAIGKVVIKETGEGGALLGDAVFELKN
NTDGTTVSQRTEAQTGEAIFSNIKPGTYTLTEAQPPVGYKPSTKQWTVEVEKNGRTTVQGEQVENREE
ALSDQYPQTGTYPDVQTPYQIIKVDGSEKNGQHKALNPNPYERVIPEGTLSKRIYQVNNLDDNQYGIEL
TVSGKTVYEQKDKSVPLDVVILLDNSNSMSNIRNKNARRAERAGEATRSLIDKITSDSENRVALVTYAS
TIFDGTEFTVEKGVADKNGKRLNDSLFWNYDQTSFTTNTKDYSYLKLTNDKNDIVELKNKVPTEAEDHD
GNRLMYQFGATFTQKALMKADEILTQQARQNSQKVIFHITDGVPTMSYPINFNHATFAPSYQNQLNA
FFSKSPNKDGILLSDFITQATSGEHTIVRGDGQSYQMFTDKTVYEKGAPAAFPVKPEKYSEMKAAGYAVI
GDPINGGYIWLNWRESILAYPFNSNTAKITNHGDPTRWYYNGNIAPDGYDVFTVGIGINGDPGTDEATA
TSFMQSISSKPENYTNVTDTTKILEQLNRYFHTIVTEKKSIENGTITDPMGELIDLQLGTDGRFDPADYTL
TANDGSRLENGQAVGGPQNDGGLLKNAKVLYDTTEKRIRVTGLYLGTDEKVTLTYNVRLNDEFVSNKFYD
TNGRTTLHPKEVEQNTVRDFPIPKIRDVRKYPEITISKEKKLGDIEFIKVNKNDKKPLRGAVFSLQKQHPDYP
DIYGAIDQNGTYQNVRTGEDGKLTFKNLSDGKYRLFENSEPAGYKPVQNKPIVAFQIVNGEVRDVTSIVPQ
DIPAGYEFTNDKHYITNEPI*PPKRE*YPRTGGIGMLPFYLIGCMMMGGVLLYTRKHP

B

5' c**gggatcc-gaa-acg-cct-gaa-acc-agt** 5' 24mer, 54 %G+C, Tm 62
BamHI

3' cc**gctcgag-aat-agg-ttc-att-ggt** 3' 27mer, 52 %G+C, Tm 61.6
XhoI

Figure 150

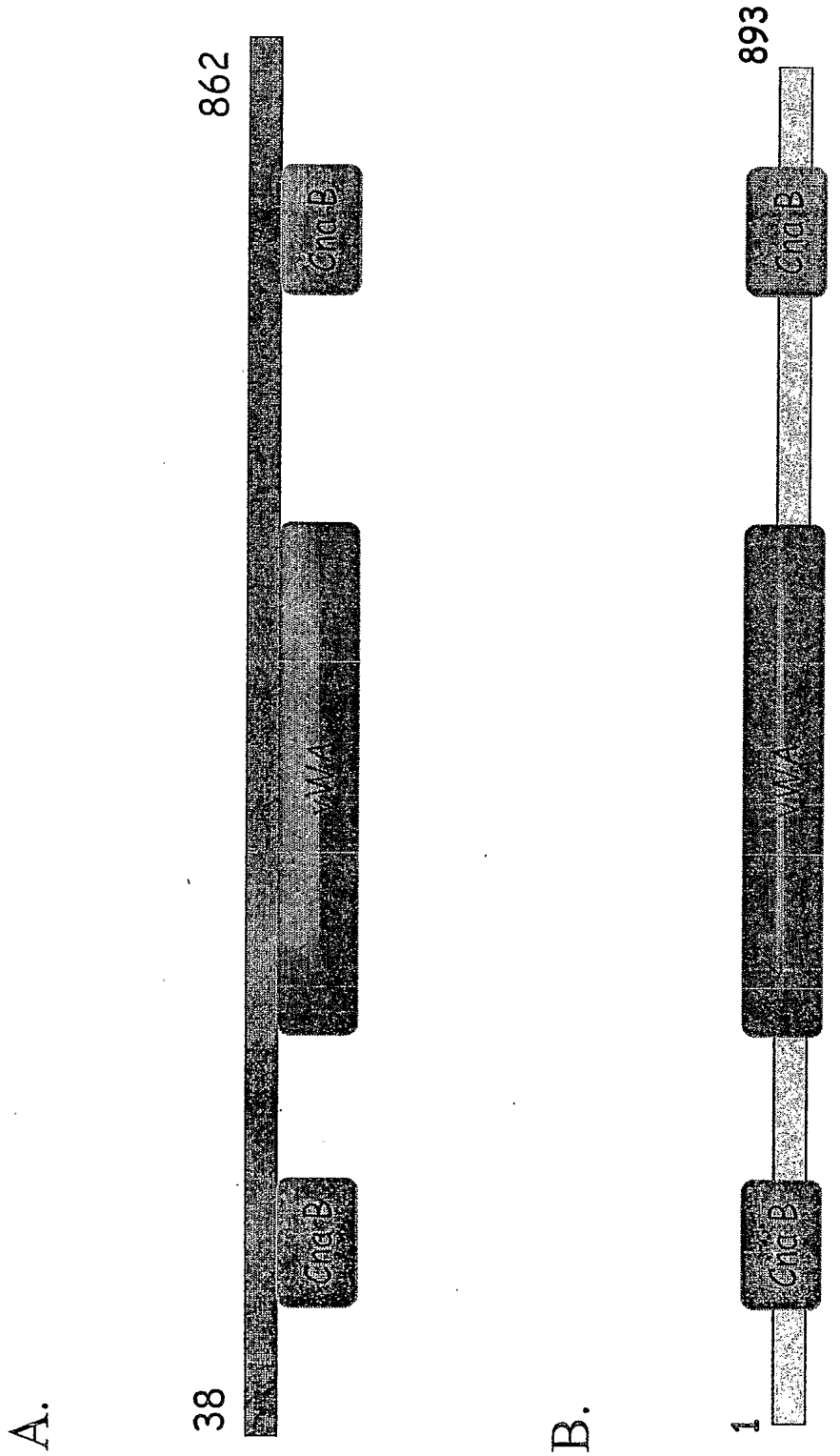
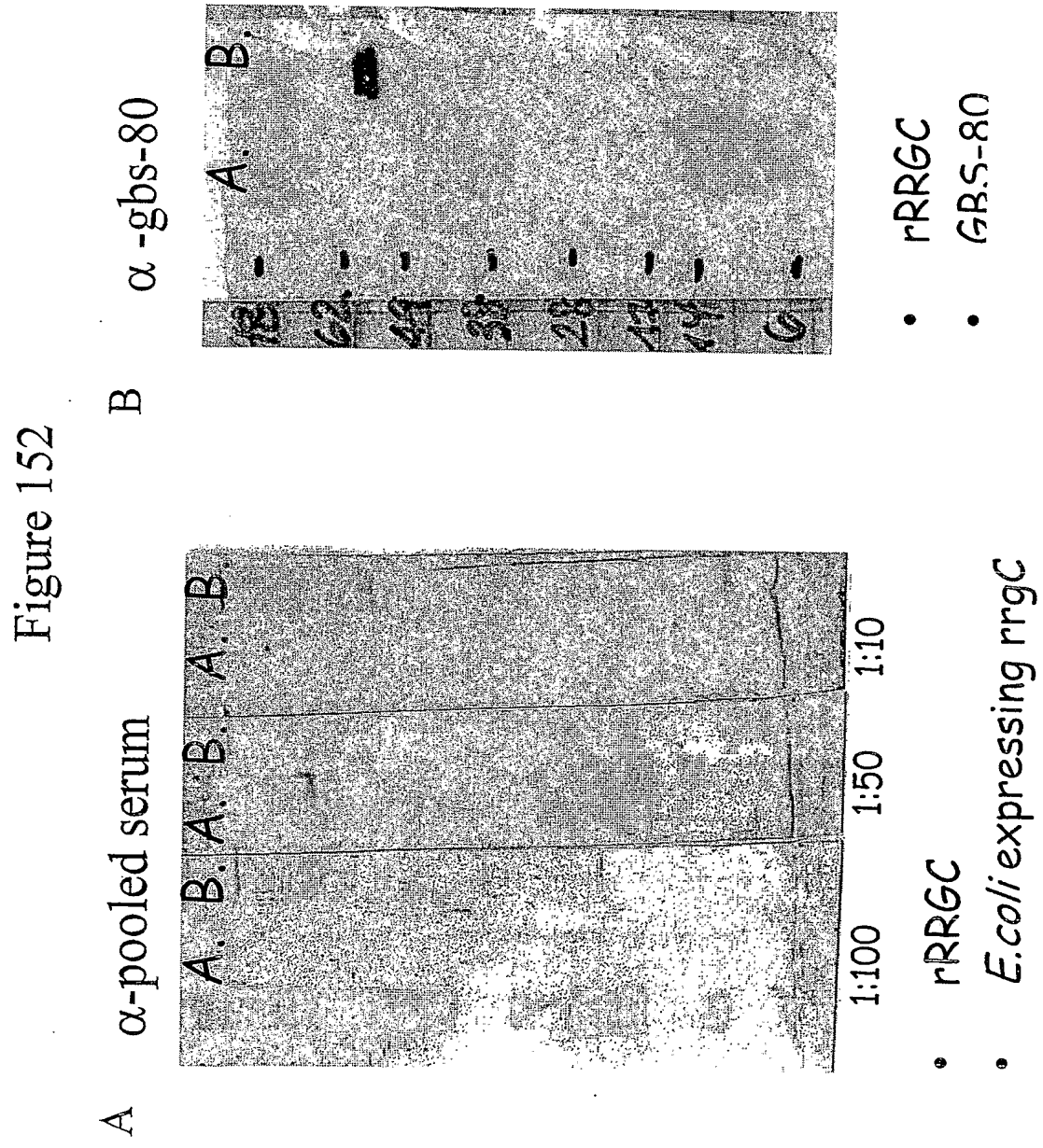


Figure 151

Figure 152


A
α-pooled serum
A. B. A. B. A. B.
1:100 1:50 1:10
• rRRGC
• E.coli expressing rrgC
B
α -gbs-80
A. B.
• rRRGC
• GBS-80

A

*MKSINKFLTMLAALLLTASSLFS**AATVFAAGTTTTSVTVHKLLATDGDMDKIANELETGNYAGNKVGVLPA
NAKEIAGVMFVWTNTNNEIIDENGQTLGVNIDPQTFKLSGAMPATAMKKLTEAEGAKFNTANLPAAKYKIY
EIHSLSTYVGEDGATLTGSKAVPIEIELPLNDVVDAHVYPKNTEAKPKIDKDFKGKANPDTPRVDKDTPVNHQV
GDVVEYEIVTKIPALANYATANWSDRMTEGLAFNKGTVKVTVDDVALEAGDYALTEVATGFDLKLTDAGLAK
VNDQNAEKTVKITYSATLNDKAIVEVPESNDVTFNYGNNPDHGNTPKPNKPNENGDLTLTKTWVDATGAPIP
AGAEATFDLVNAQTGKVVQTVTLTTDKNTVTVNGLDKNTEYKFVERSIKGYSADYQEITTAGEIAVKNWKD
ENPKPLDPTEPKVVTYGKKFVKVNDKDNRLAGAEFVIANADNAGQYLARKADKVSQEEKQLVVTTKDALDRAV
AAYNALTAQQQTQQEKEKVDKAQAAYNAAVIAANNAFEWVADKDNENVVKLVSDAQGRFEITGLLAGTY
YLEETKQPAGYALLTSRQKFEVTATSYSATGQGIEYTAGSGKDDATKVVNKKIT*IPQTGGIGTIIFAVAGAAI*
MGIAVYAYVKNNKDEDQLA

B

5' c**ggatcc**-**gct-gca-aca-gtt-ttt** 3' 23mer, 52.2% G+C, Tm 60.6
BamHI

5'*ccg***ctcgag**-**agt-gat-ttt-ttt-gtt-gac** 3' 26mer, 44.4% G+C, Tm 61.7
XhoI

Figure 153

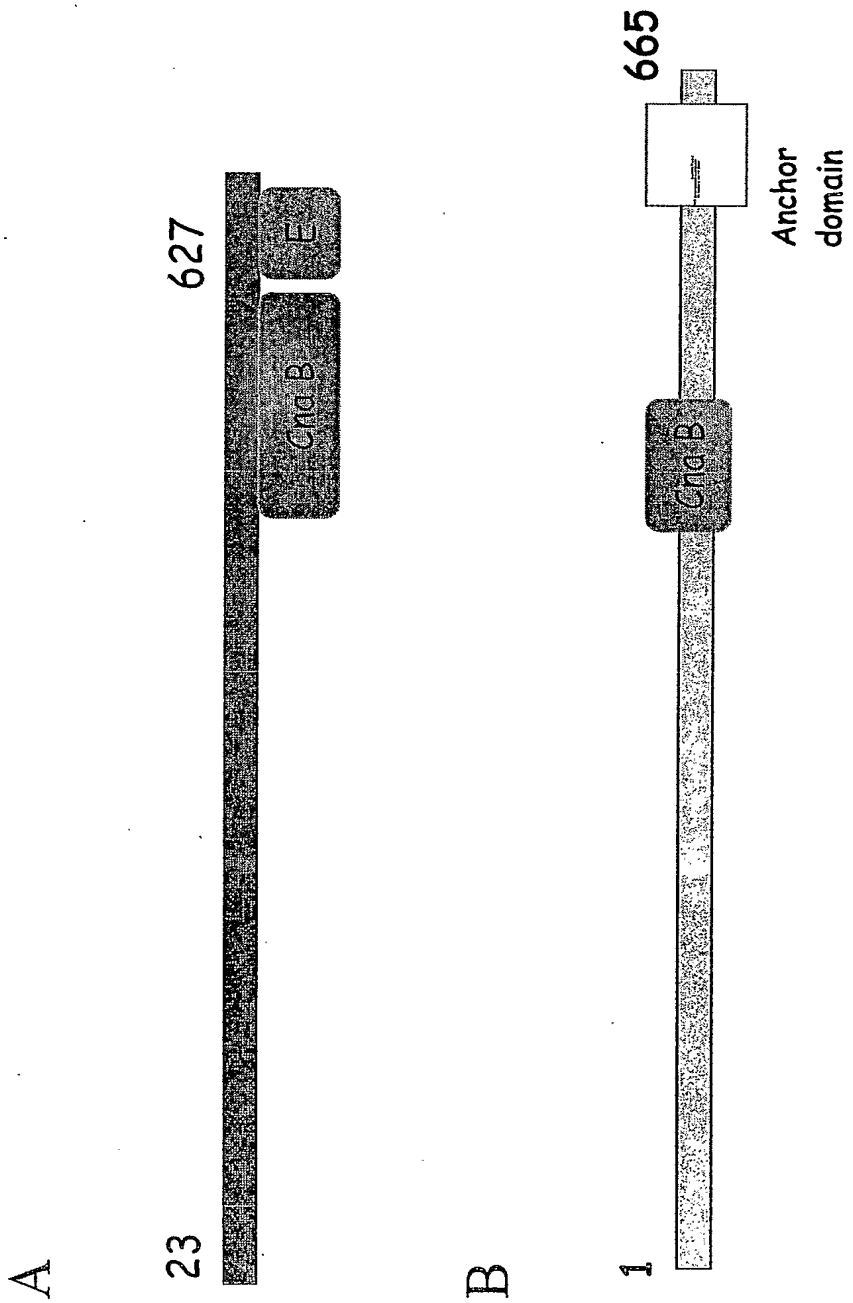


Figure 154

PCT/US05/27239

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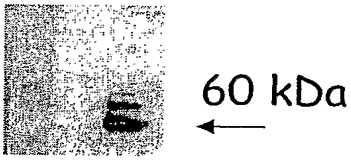


Figure 155

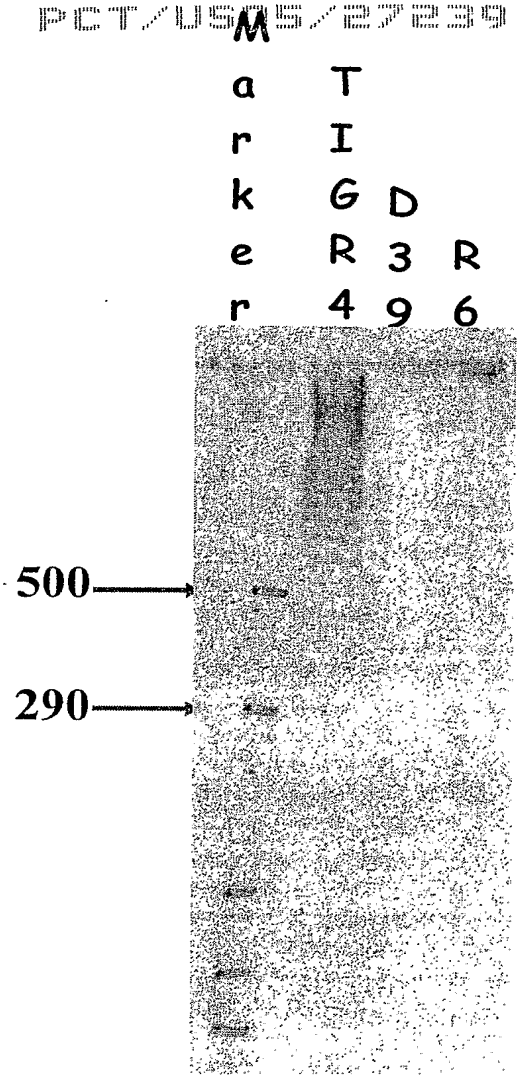


Figure 156

A

*MISRIFFVMALCFSLVWGA**HAVQAQEDHTLVLQLENYQEVVSQLPSRDGHRLQVWKLDDSYS
YDDRVQIVRDLHSWDENKLSSFKKTSFEMTFLENQIEVSHIPNGLYYVRSIIQTDAVSYPAEFLF
EMTDQTVEPLVIVAKKTDTMTTKVKLIKVDQDHNRLEGVGFKLVSVARDVSEKEVPLIGEYRYSSS
GQVGRTLYTDKNGEIFVTNLPLGNYRFKEVEPLAGYAVTTLDTDVQLVDHQLVTITVVNQKLPRGN
VDFMKVDGRTNTSLQGAMFKVMKEESGHYTPVLQNGKEVVVTSGKDGRFRVEGLEYGTYYLWELQ
APTGYVQLTSPVSFTIGKDTRKELVTVVKNNK*RPRIDVPDTGEETLYILMLVAILLFGSGYYLTKKP
NN*

B

5' c**gggatcc-cat-gca-gtc-caa-gcg-caa-gaa** 21mer, 61% G+C, Tm 60.8
BamHI
5' cc**gctcgag-ctt-gtt-att-ttt-aac-cac** 27mer, 44% G+C, Tm 58.4
XhoI

Figure 157

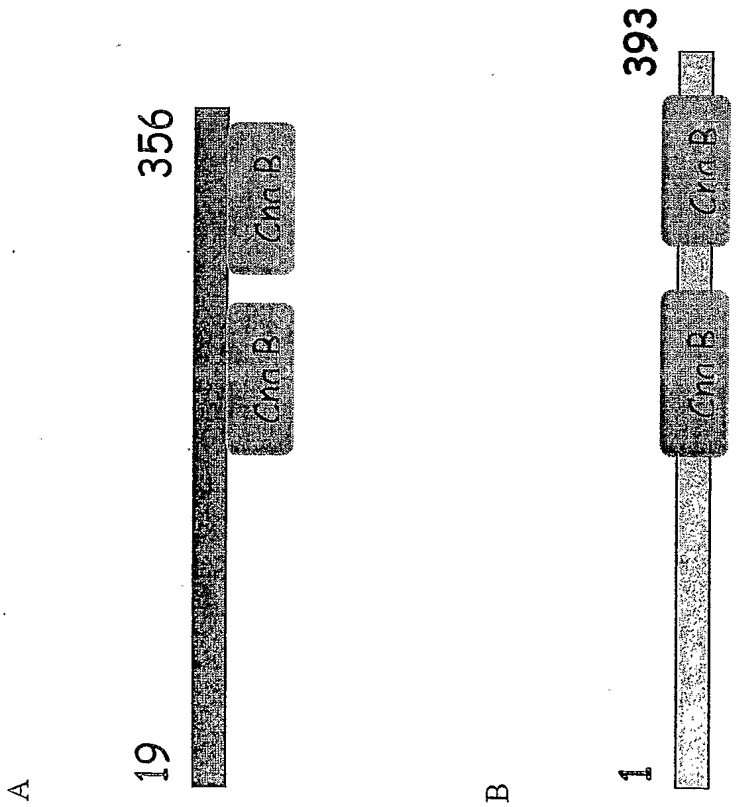


Figure 158

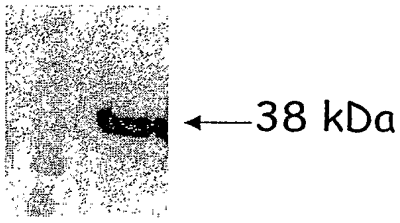


Figure 159

PCT/US05/27239

358/487

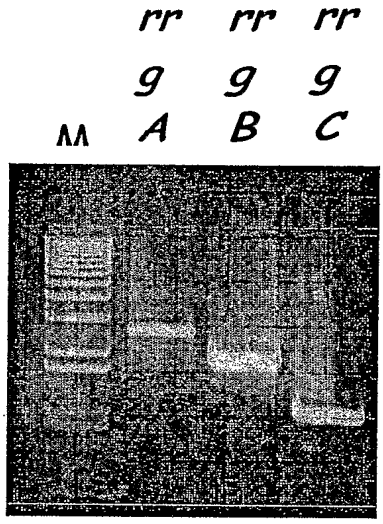
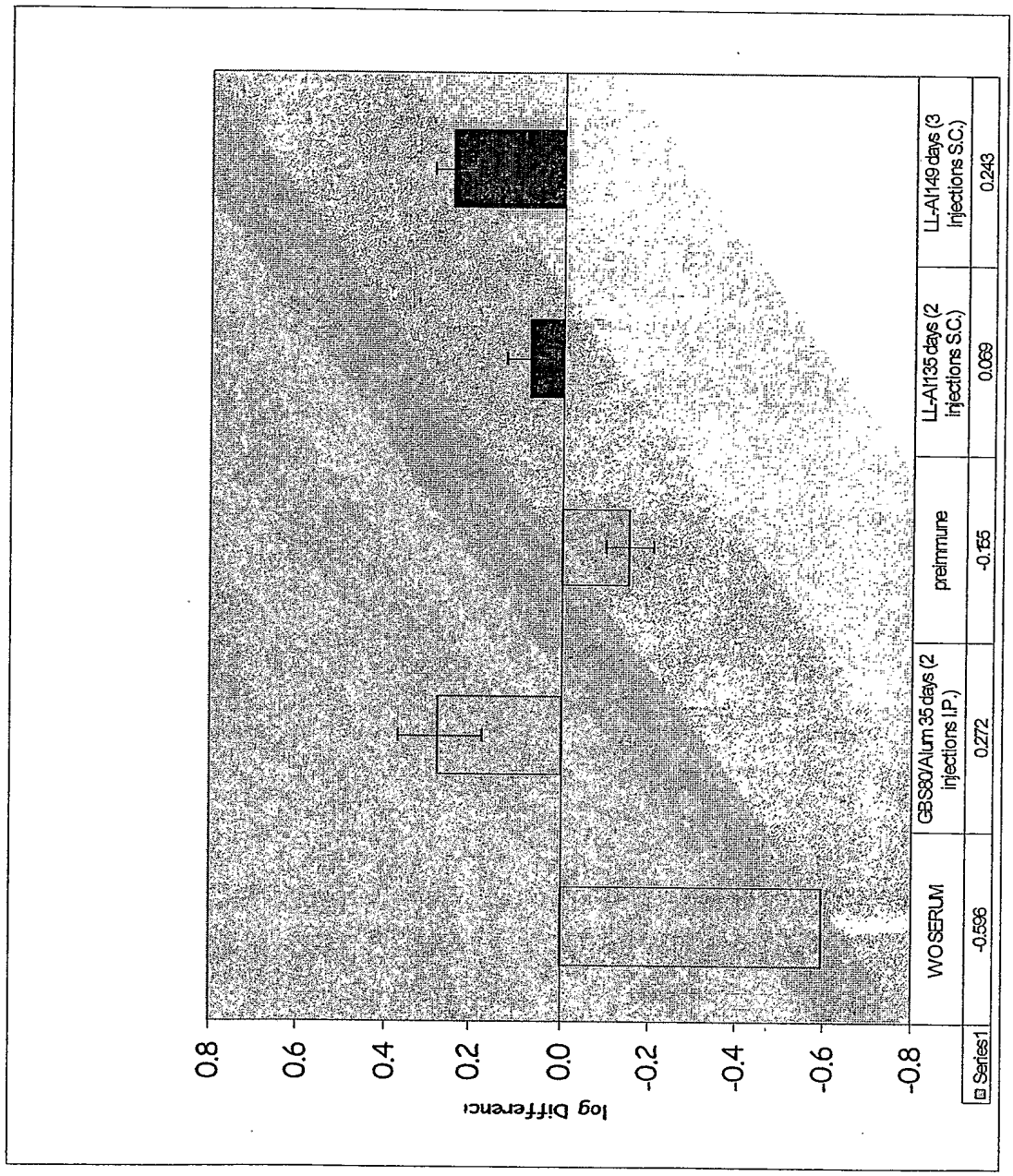


Figure 160

PCT/US05/27239 359/487

Figure 161



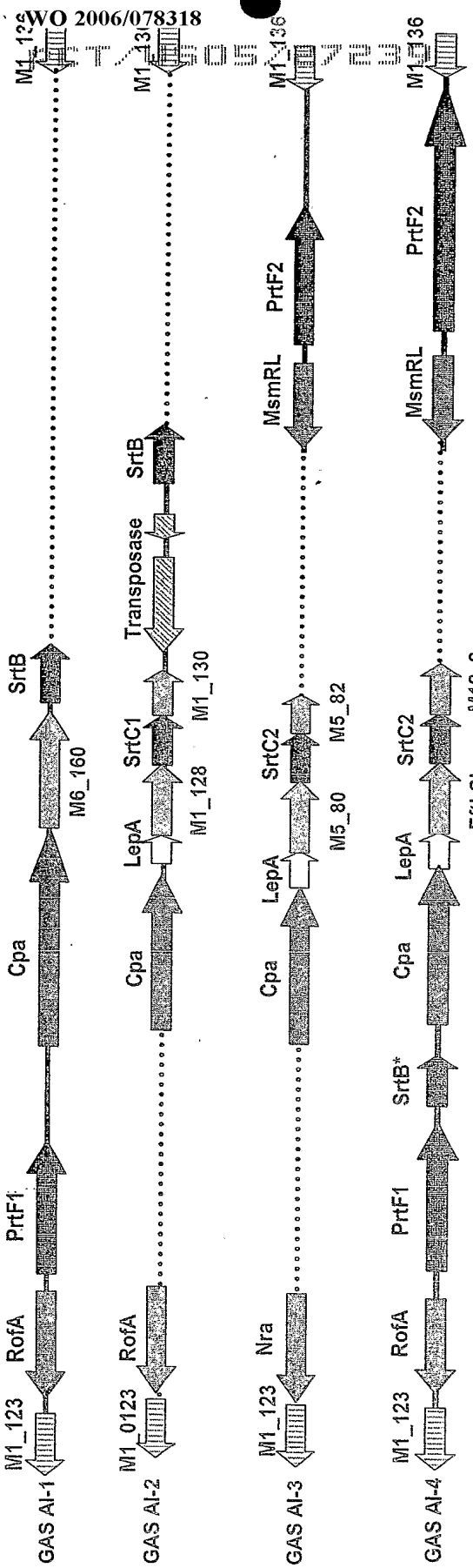
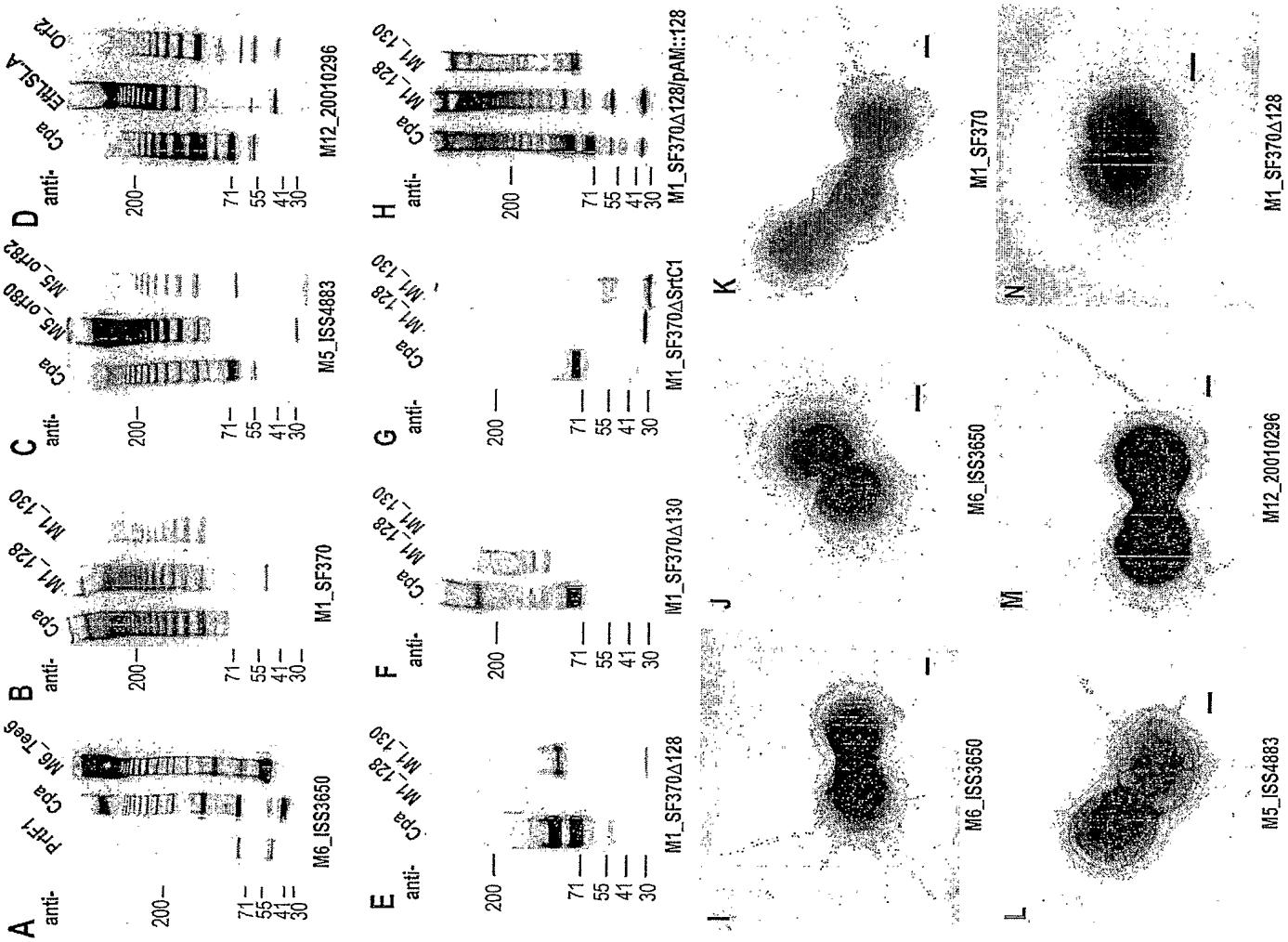

M1_123
RofA
PrtF1
Cpa
SrtB
M6_160
GAS AI-1
M1_0123
RofA
LepA
SrtC1
M1_128
M1_130
Transposase
SrtB
GAS AI-2
M1_123
Nra
Cpa
LepA
SrtC2
M5_80
M5_82
MsmRL
PrtF2
GAS AI-3
M1_123
RofA
PrtF1
SrtB*
Cpa
LepA
SrtC2
EftLSL
M12_2
MsmRL
PrtF2
GAS AI-4

FIGURE 162

Figure 163


A
anti-
PrtF1
Cpa
M6_Tese
200
71
55
41
30
M6_ISS3650
B
anti-
Cpa
M1_128
M1_130
M1_SF370
C
anti-
Cpa
MS_orf80
MS_orf82
M5_ISS4883
D
anti-
Cpa
EftLsLA
orf2
M12_20010296
E
anti-
Cpa
M1_128
M1_130
M1_SF370Δ128
F
anti-
Cpa
M1_128
M1_130
M1_SF370Δ130
G
anti-
Cpa
M1_128
M1_130
M1_SF370ΔSrtC1
H
anti-
Cpa
M1_128
M1_130
M1_SF370Δ128/pAM::128
I
J
K
L
M
N
M6_ISS3650
M6_ISS3650
M1_SF370
M5_ISS4883
M12_20010296
M1_SF370Δ128

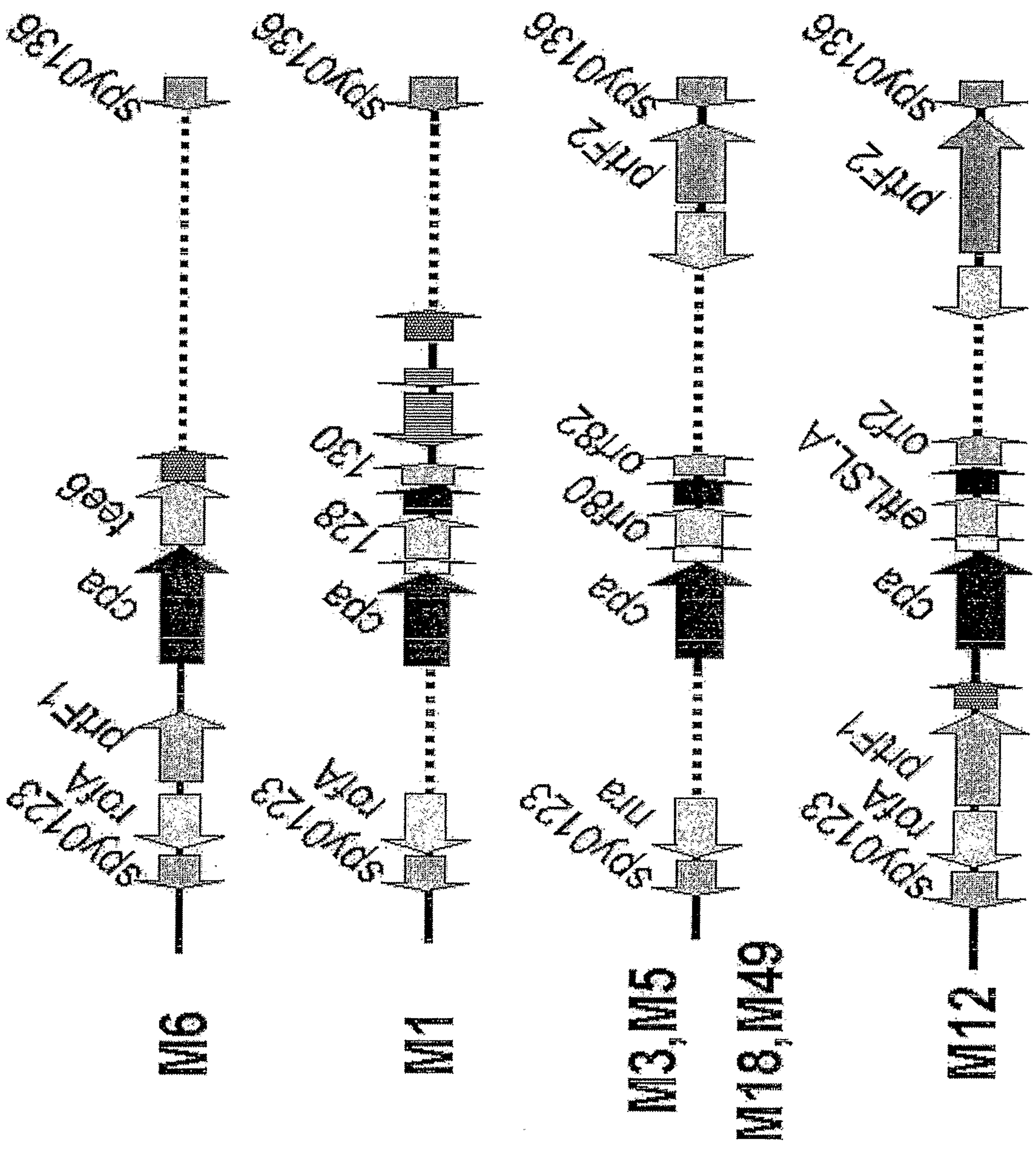

M6
M1
M3, M5
M18, M49
M12
spy0136
spy0123
prtF2
prtF1
rofA
nra
cpa
tee6
orf82
orf80
128
130

Figure 164

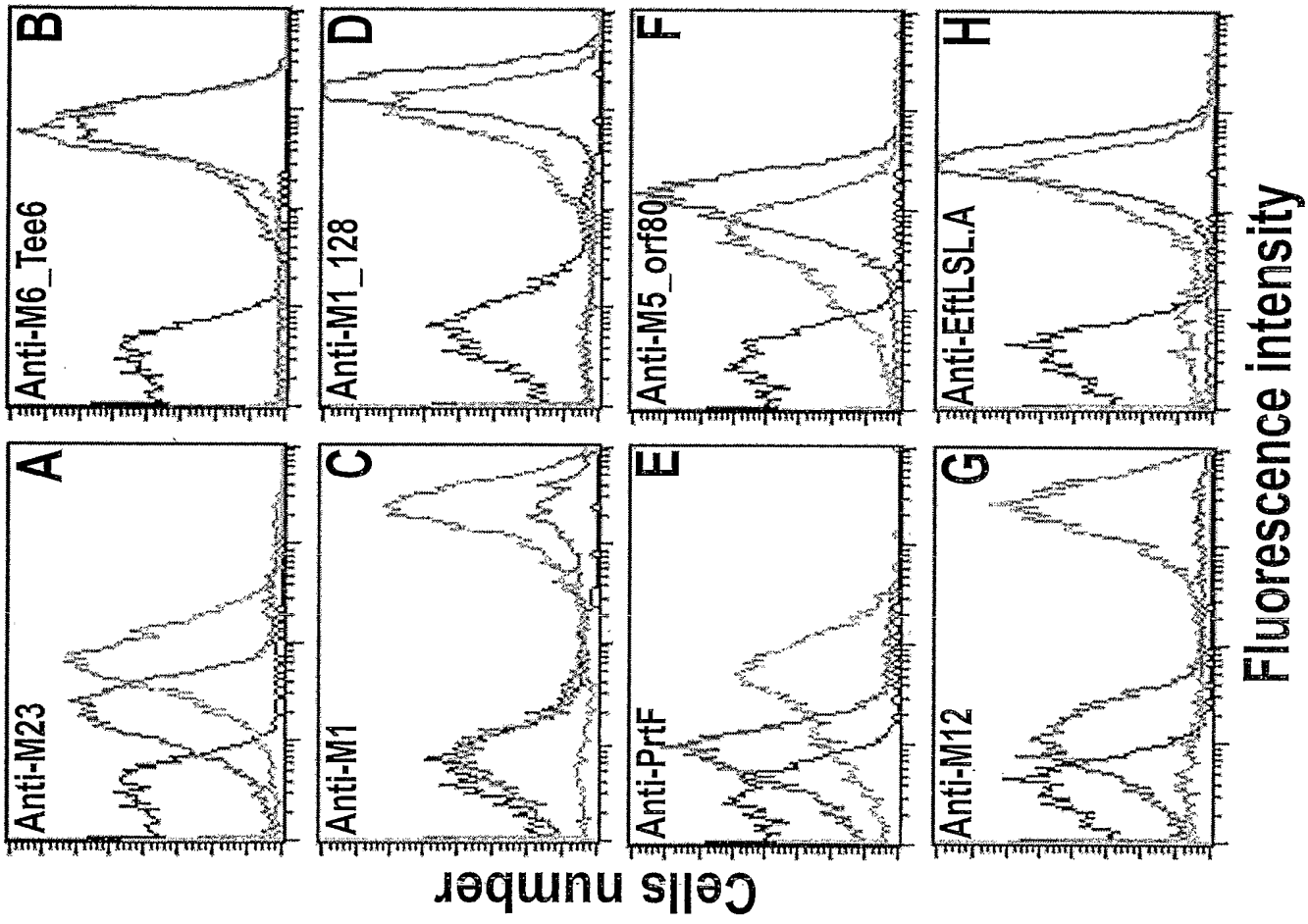

A
Anti-M23
B
Anti-M6_Tee6
C
Anti-M1
D
Anti-M1_128
E
Anti-PrtF
F
Anti-M5_orf80
G
Anti-M12
H
Anti-EftLSLA
Cells number
Fluorescence intensity

Figure 165

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364/487

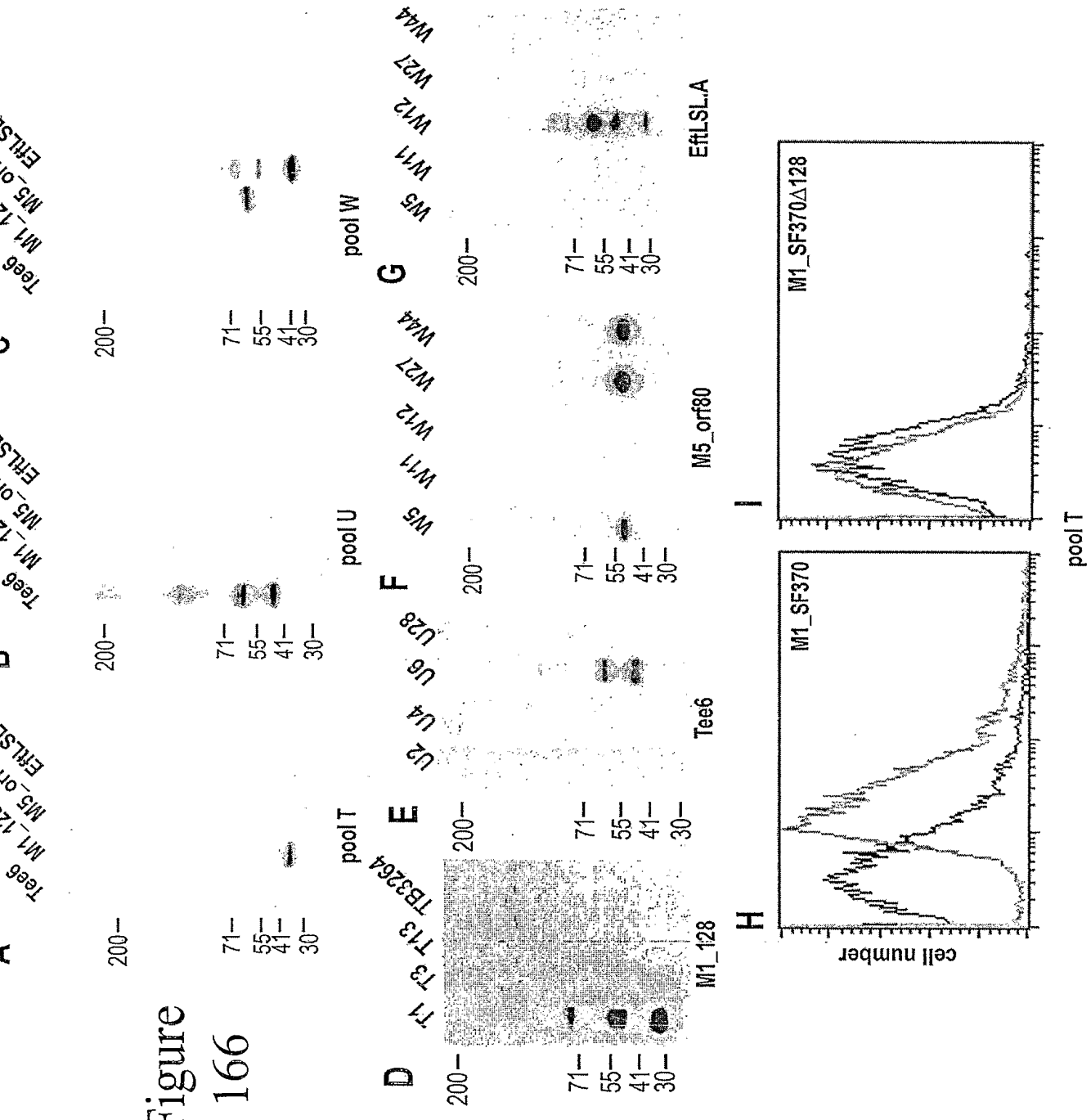


Figure 166

Figure 167

		PCR						Sequence
Strain	**M-type**	**SrtB**	**SrtC1**	**SrtC2**	**MsmRL**	**SipA2**	**AI**	
2724	6	+	-	-	-	-	1	
2894	6	+	-	-	-	-	1	
3650	6	+	-	-	-	-	1	
5529	6	+	-	-	-	-	1	
Dsm2071	23	+	-	-	-	-	1	+
SF370	1	+	+	-	-	-	2	literature
2580	1	+	+	-	-	-	2	
2913	1	+	+	-	-	-	2	
3280	1	+	+	-	-	-	2	
3348	1	+	+	-	-	-	2	
2719	?	+	+	-	-	-	2	
2721	3	-	-	+	+	+	3	
3040	3	-	-	+	+	+	3	
3135	3	-	-	+	+	+	3	
3776	44 ?	-	-	+	+	+	3	+
4959	77	-	-	+	+	+	3	+
4088	**Clinical isolate**	-	-	+	+	+	3	
2728	12	+	-	+	+	+	4	
2720	9	+	-	+	+	+	4	+
2727	11	+	-	+	+	+	4	+
4436	28	+	-	+	+	+	4	+
5481	44 ?	+	-	+	+	+	4	+
4538	50	+	-	+	+	+	4	+
3789	78	+	-	+	+	+	4	+
4883	5	+	-	+	+	+	4	
5476	89	+	-	+	+	+	4	
5495	?	+	-	+	+	+	4	
2722	4	-	-	-	-	-	?	
2723	5?	-	-	-	-	-	?	
2725	8	-	-	+	-	-	?	
2726	2	-	-	-	-	-	?	
2634	4	-	-	-	-	-	?	
5531	75	+	+	-	-	-	?	In progress

Figure 168

Immuno-electronmicroscopy
(Immunogold Negative Staining,
1° α - 80, 2° α-mouse gold particles 10nm)
A
B
C
L. lactis
-
L. lactis + AI-1
+

Figure 169

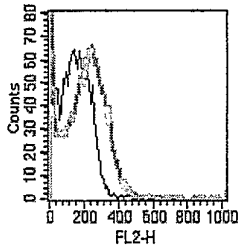
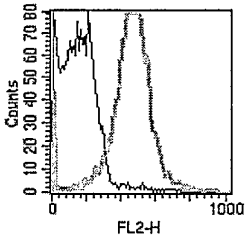
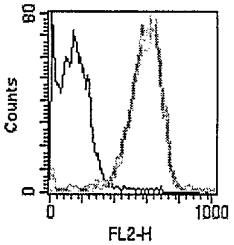
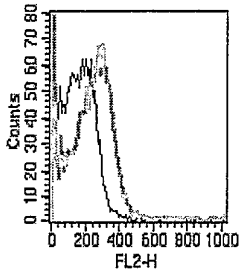
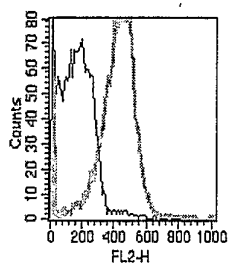
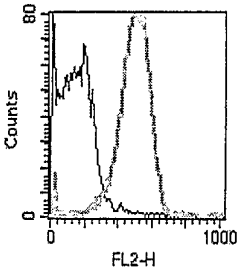
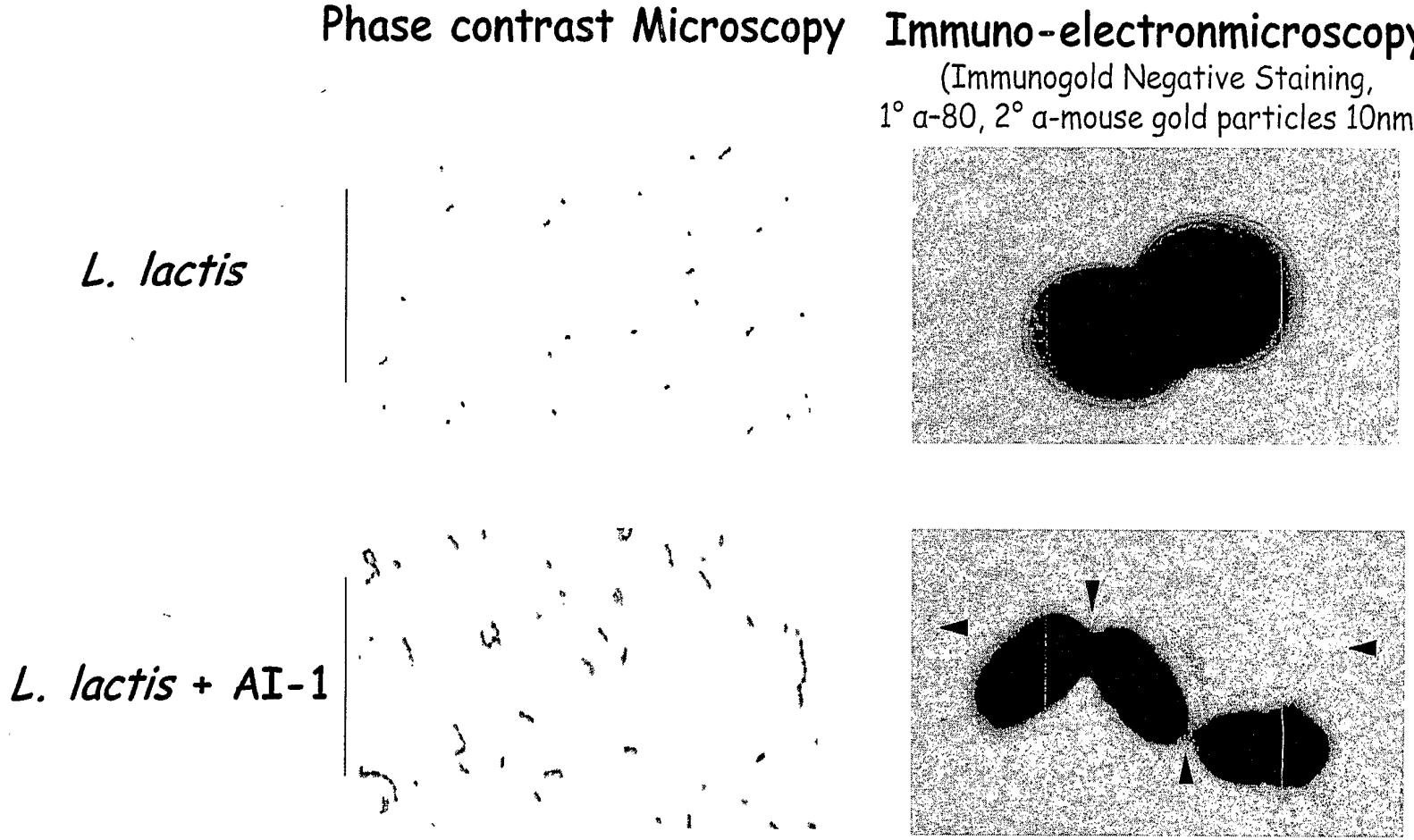
	L. lactis	*L. lactis* +AI-1	GBS JM9130013
α-80			
	ΔMean < 100	ΔMean 298	ΔMean 461
α-104			
	ΔMean < 100	ΔMean < 251	ΔMean < 355

Figure 170



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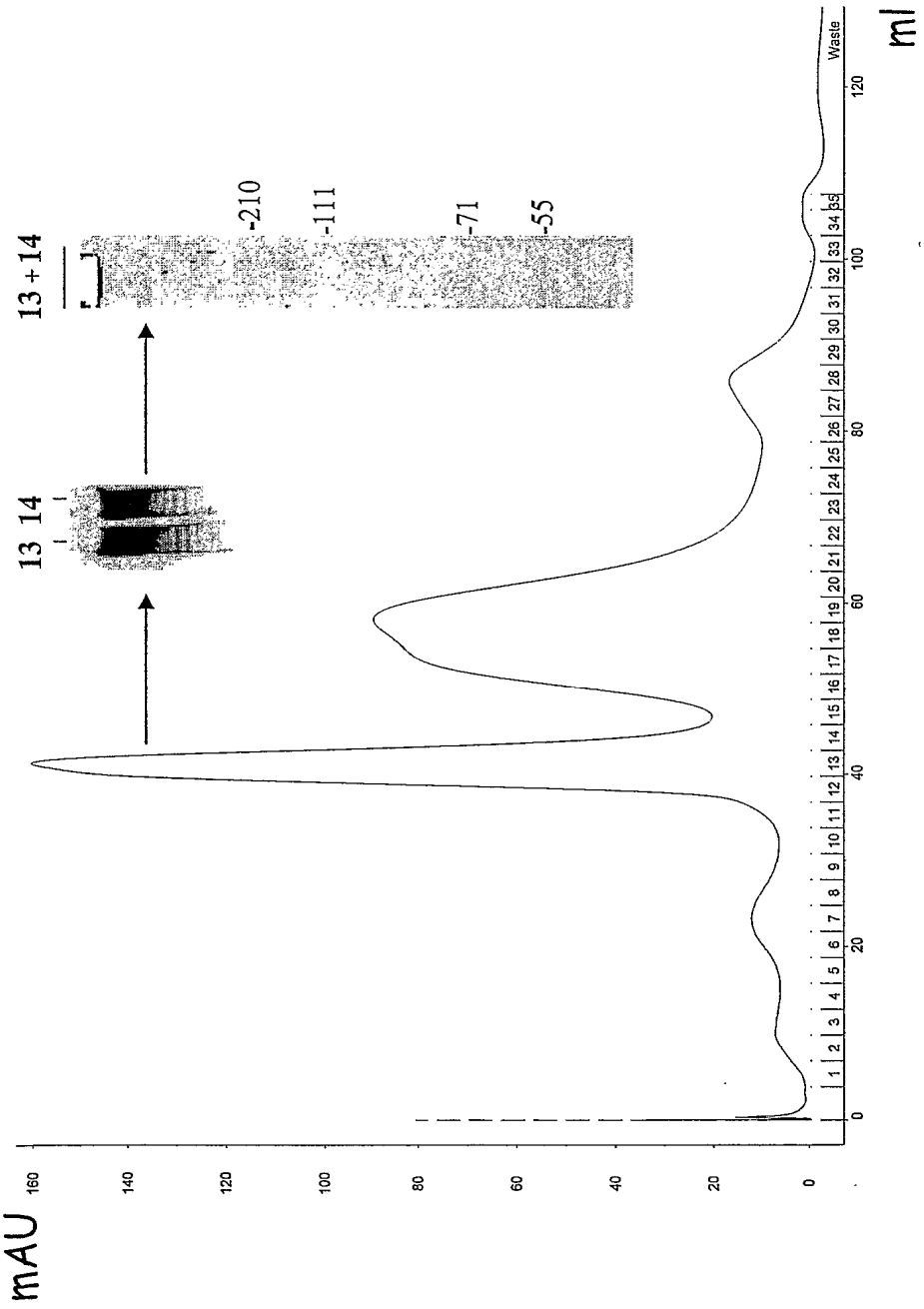
PCT/US2005/027239

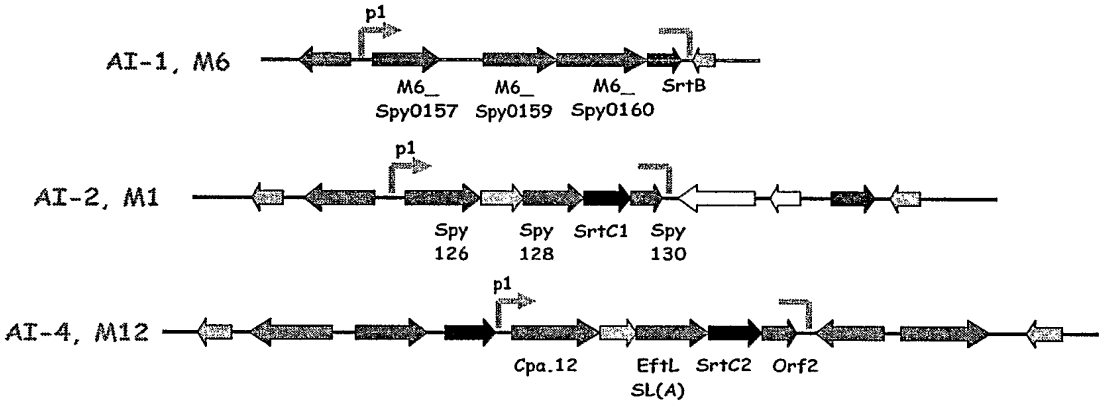
Figure 171


Gel filtration on Sepharyl HR 400
13 14
13 + 14
-210
-111
-71
-55
mAU
ml
Waste

PCT/US05/27239

370/487

Figure 172



PCT/US05/27239 371/487

Figure 173

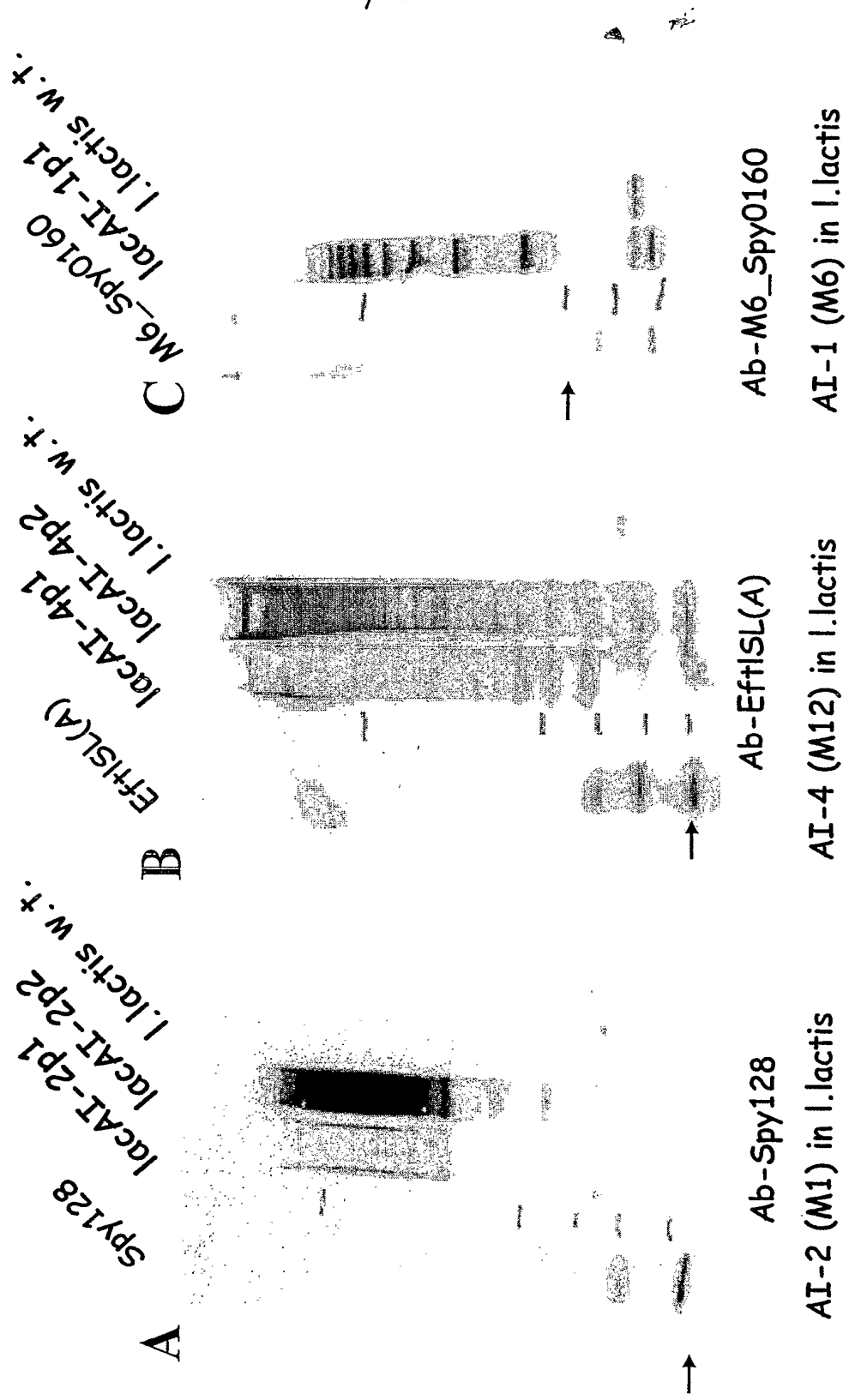
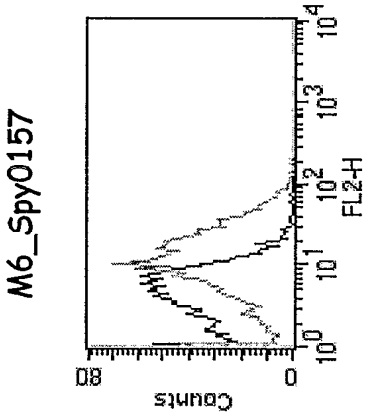


Figure 174



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373/487

Figure 175

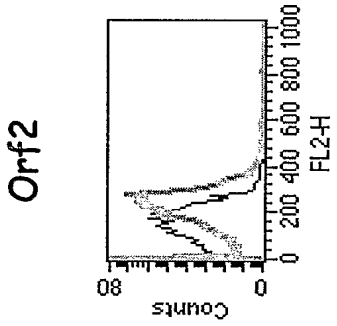

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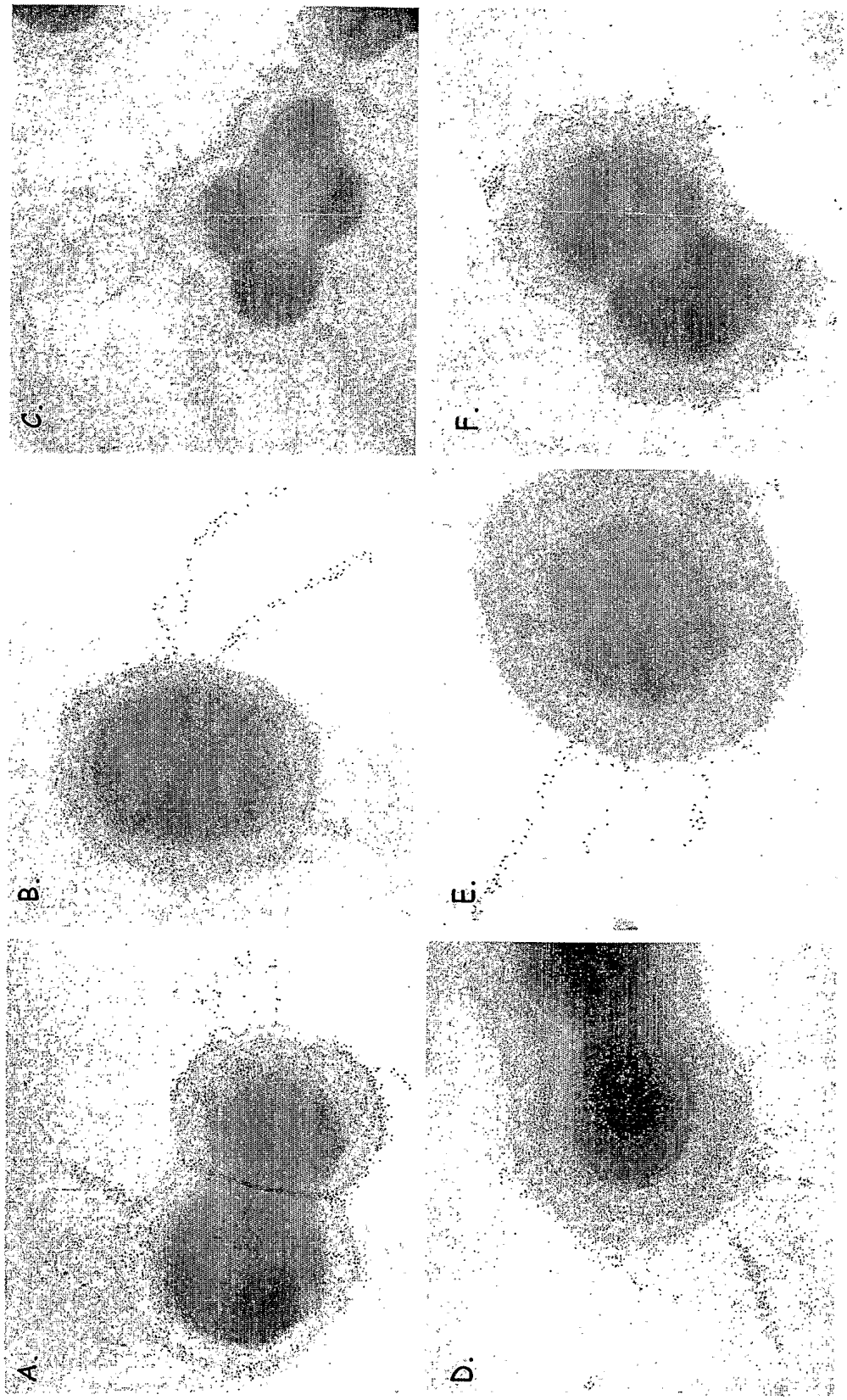
Figure 176

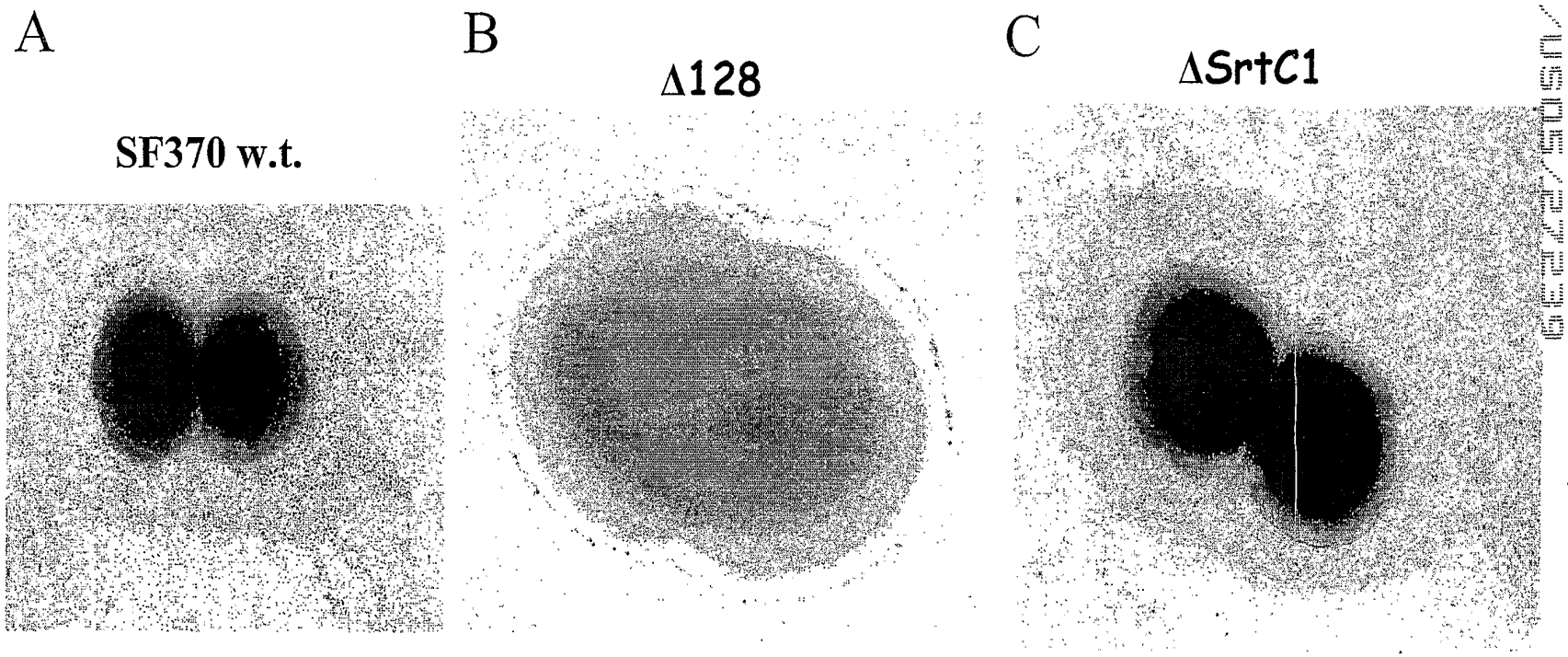


Immuno-gold labeling with antibodies against: A. B. C. D. E. M6_Spy0160; F. M6_Spy0159

PCT/US2005/027239

Figure 177

Figure 178



Immuno-gold labeling with sera against Spy128

Comparison of wild type and mutant strain by Immunoelectron Microscopy show that **Spy128- or SrtC1-lacking bacteria are not able to assemble pili. SrtC1, therefore, is absolutely required for pilus assembly but not for surface anchoring.**

Figure 179

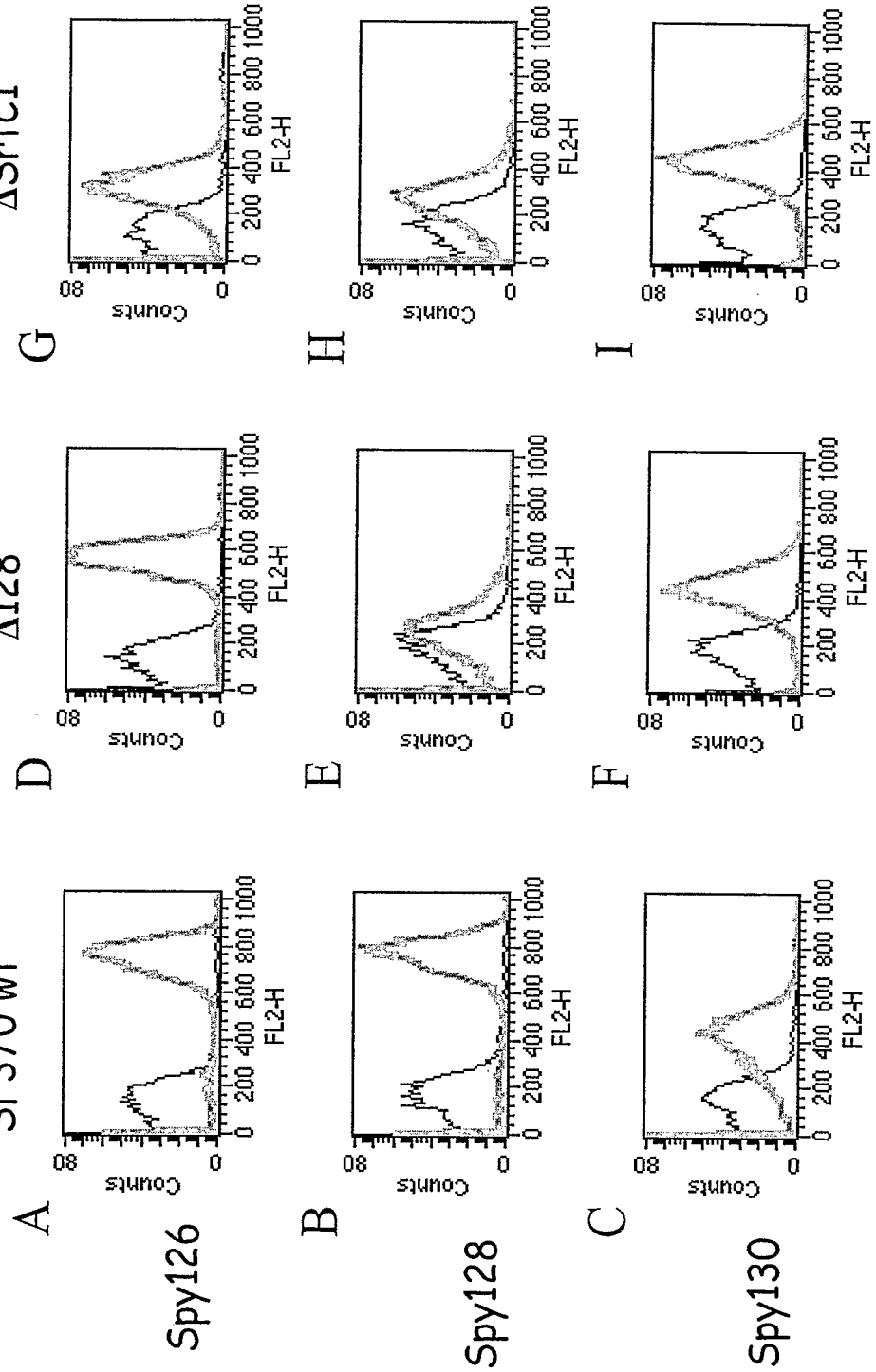

SF370 wt
ΔSrtC1
Δ128
A
B
C
D
E
F
G
H
I
Spy126
Spy128
Spy130
Counts
FL2-H
0
200
400
600
800
1000
80

Figure 180

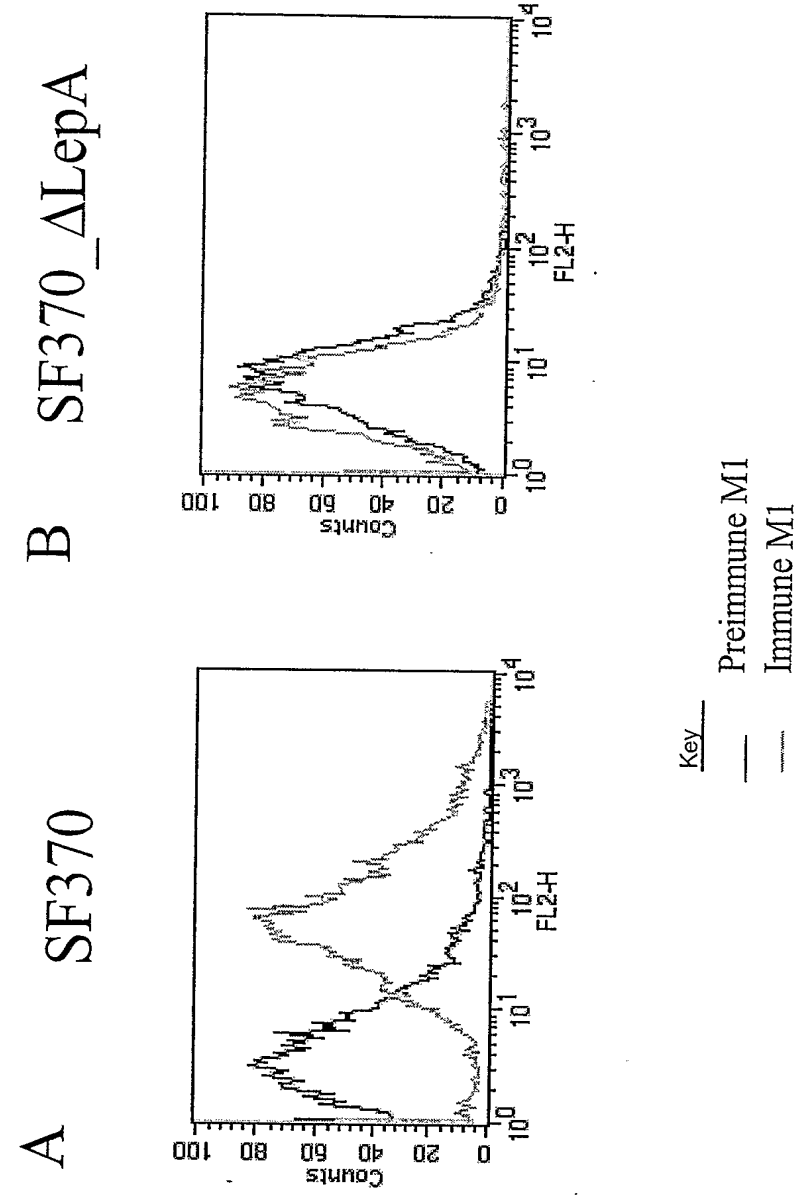


Figure 181

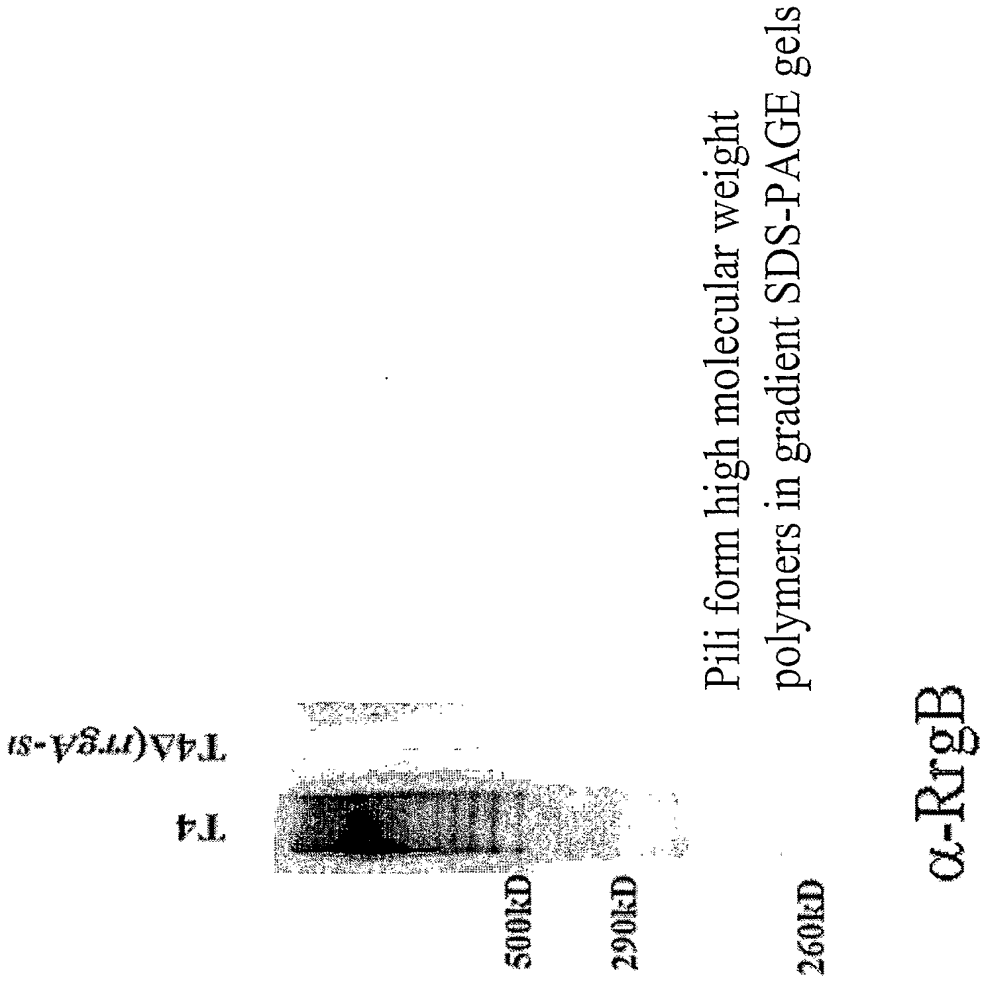
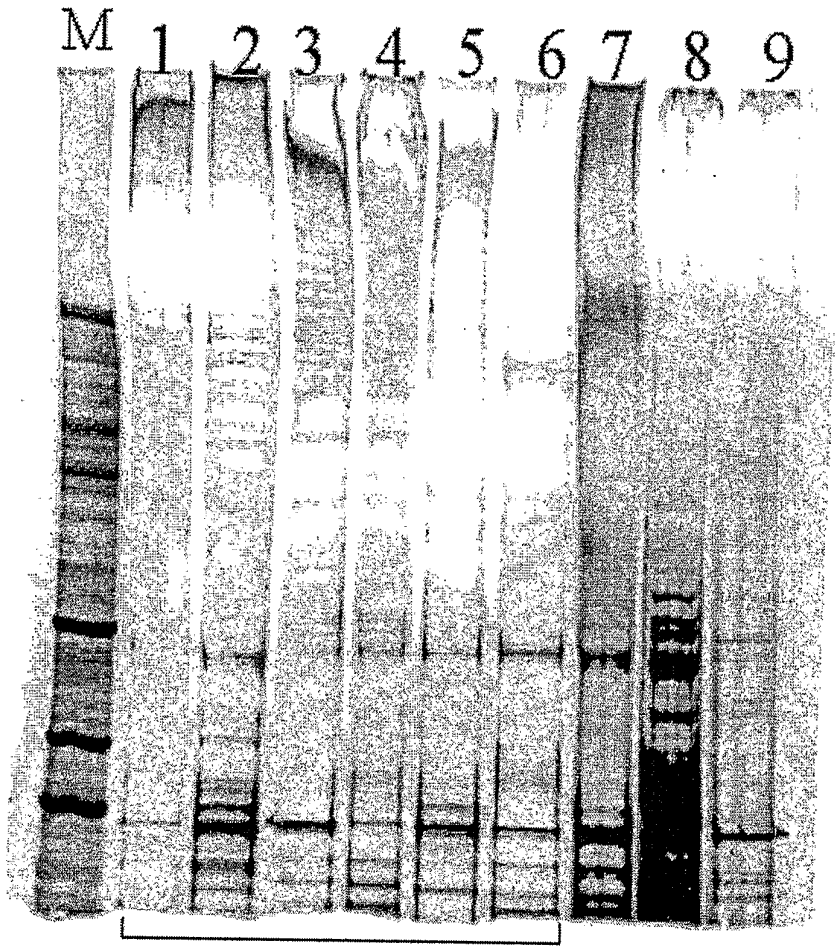

Pili form high molecular weight
polymers in gradient SDS-PAGE gels
α-RrgB
260kD
290kD
500kD
T4
T4Δ(rrgA-srtC1)

Figure 182



1.TIGR4
2. 19A Hungary-6
3. 6B Finland-12
4. 6B IJ
5. 9V Spain-3
6. 23F Taiwan-15
7. 19F IJ
8. 1 IJ
9. D39

Figure 183

kDa
M
TIGR4
TIGR4-8Δ
500
290
Silver stained gel 3-8%
kDa
500
290
260
α-RrgB
TIGR4
TIGR4-8Δ
9VSp3
6BFin-12
Anti-RrgB TIGR4 recognized the 9v pili

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Figure 184

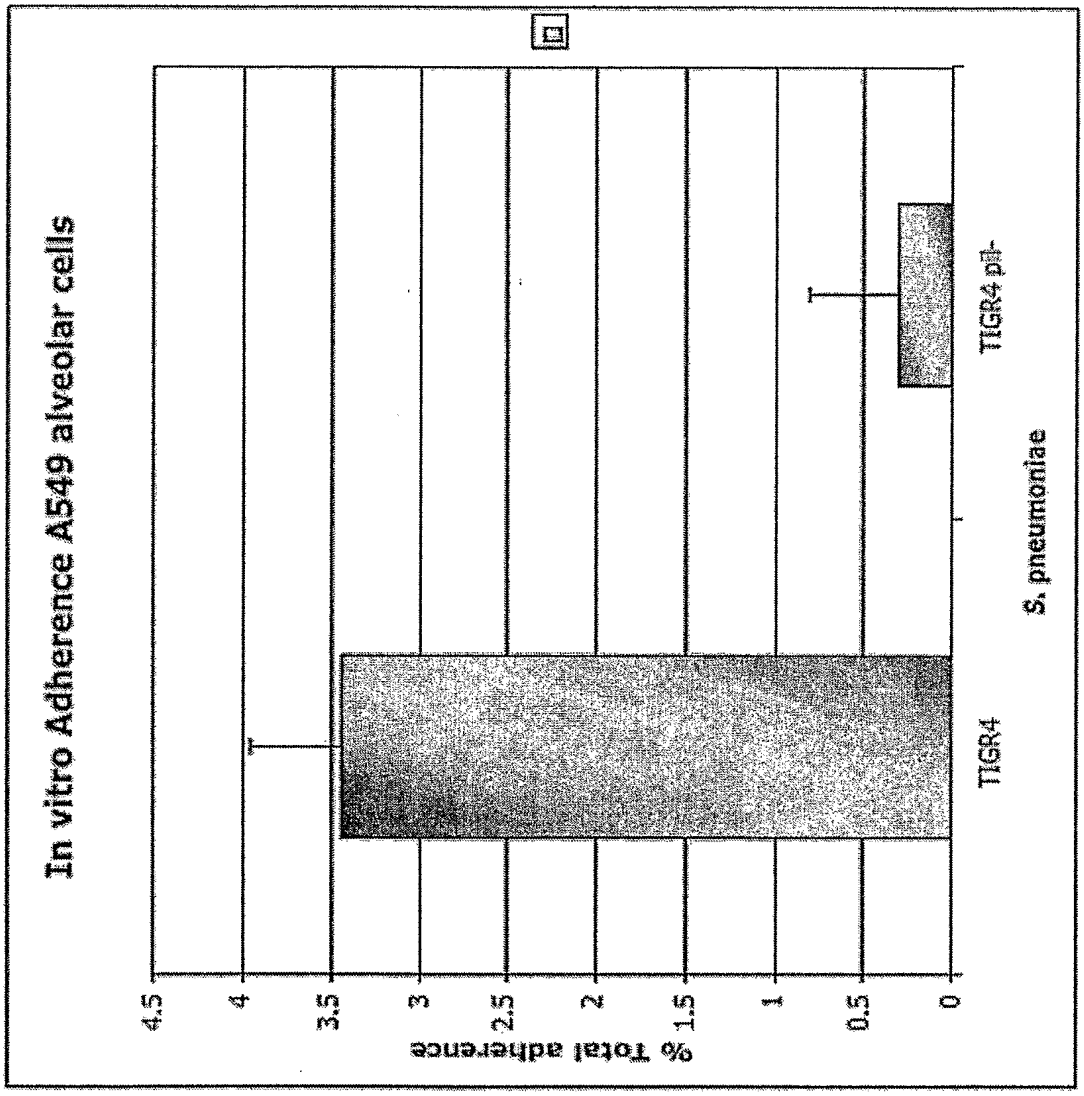
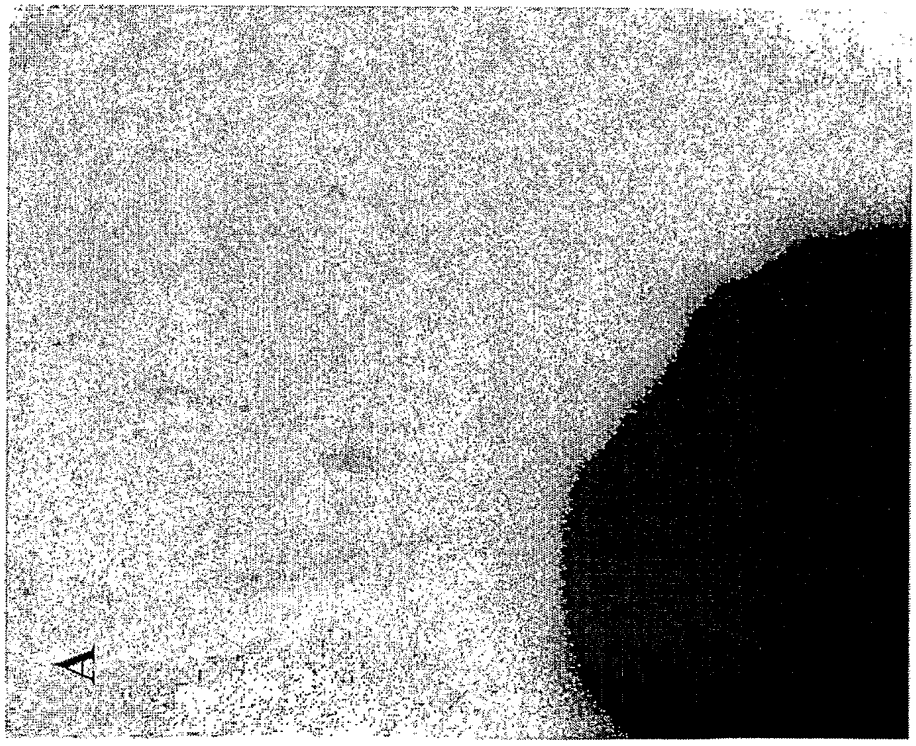


Figure 185



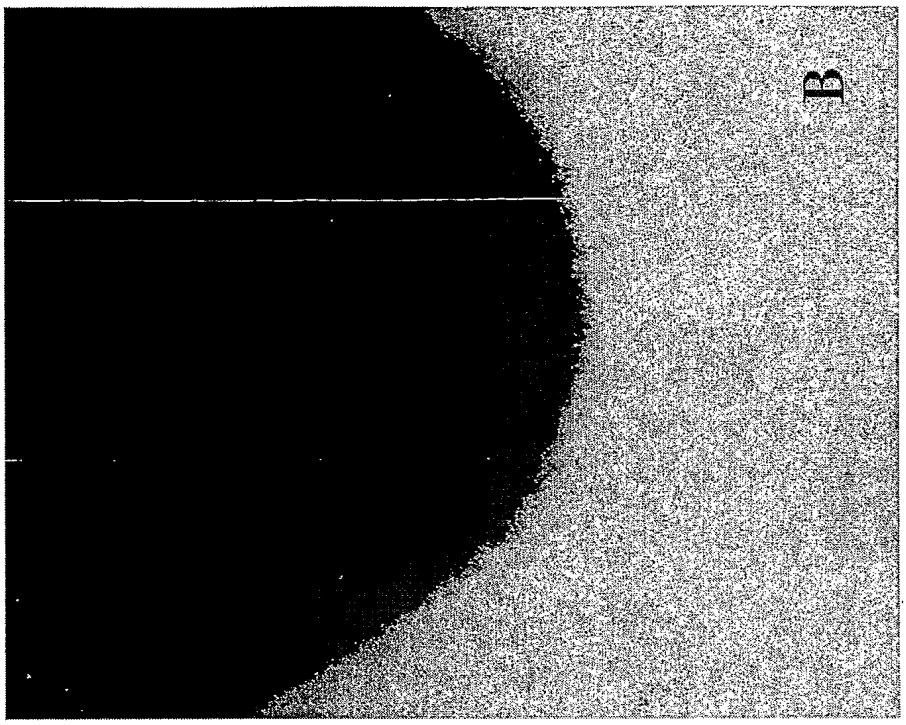


Figure 186

PCT/US05/27239

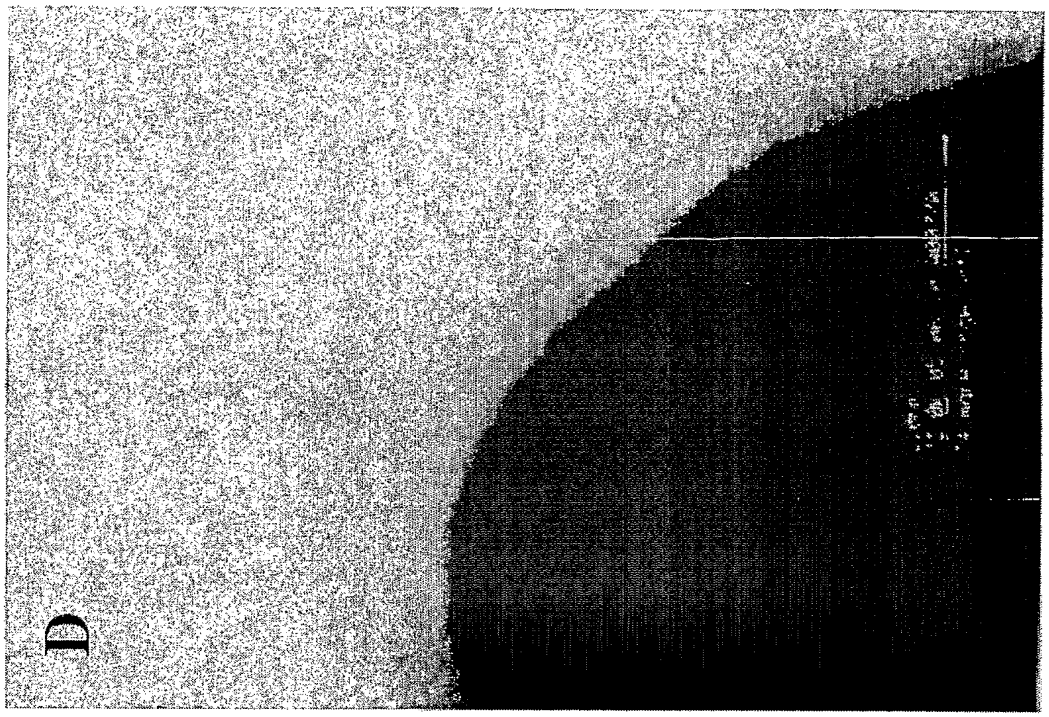


Figure 188

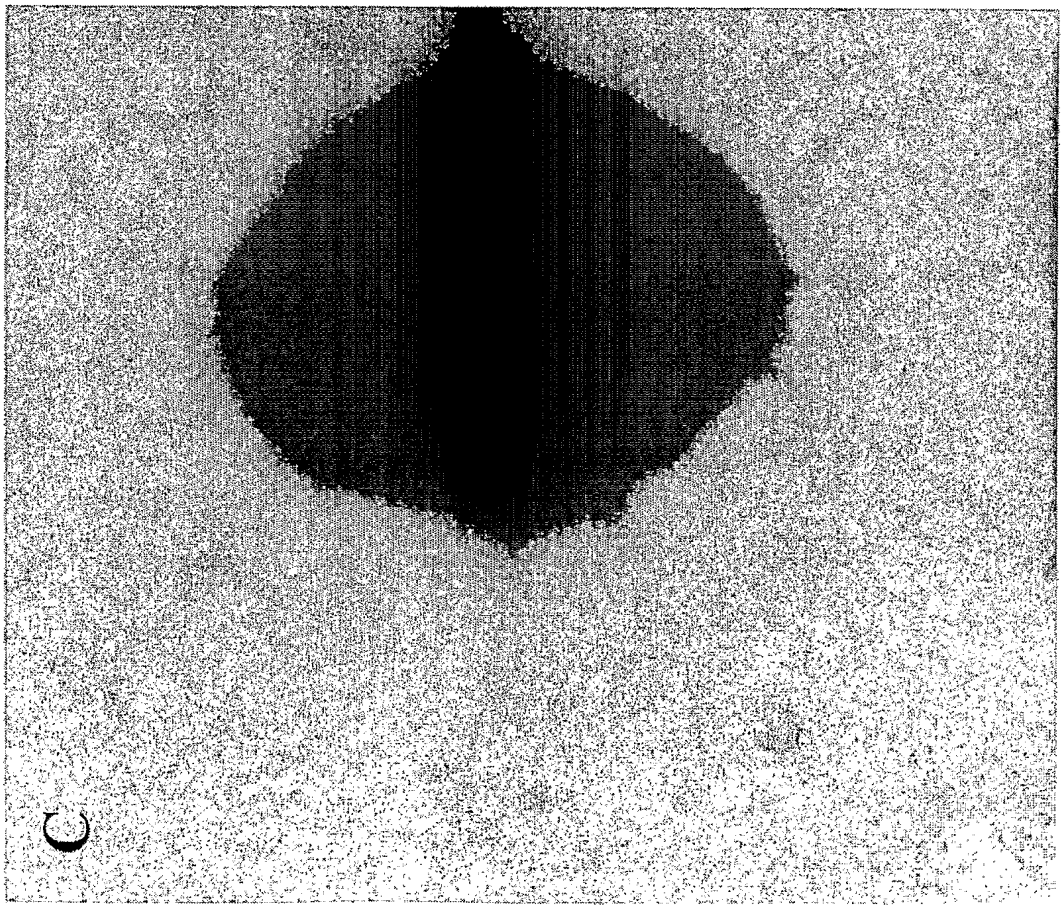


Figure 187

Figure 189

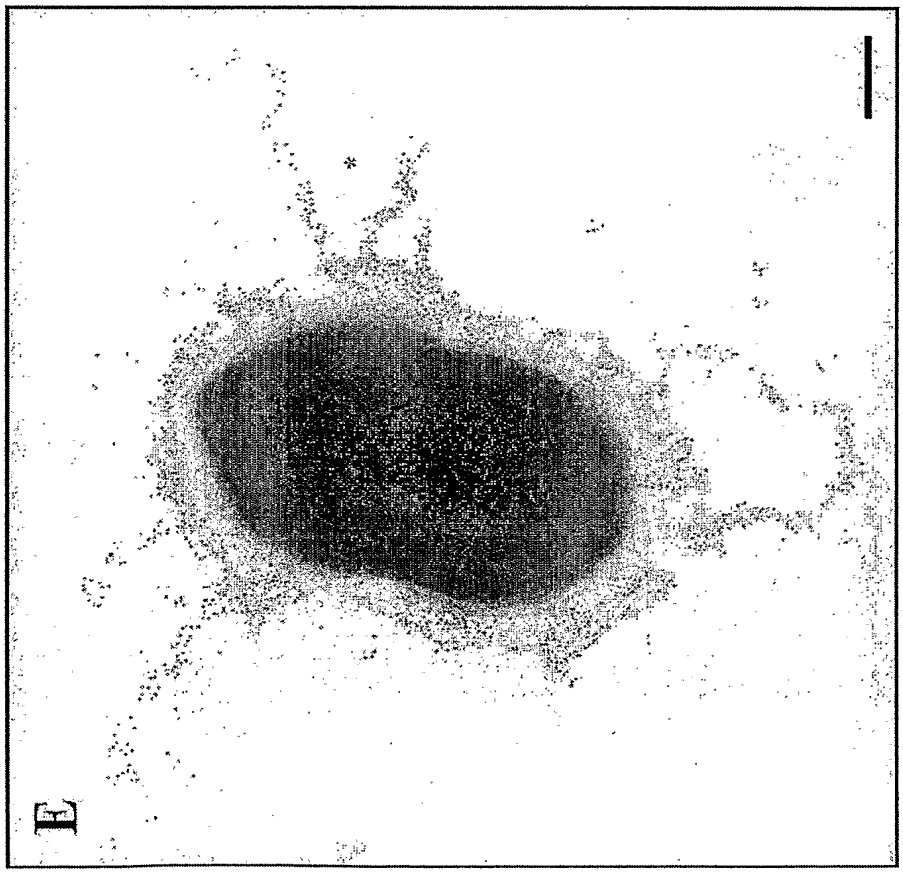


Figure 190

S. pneumoniae pili proteins: sp0462 (Rrg.A)

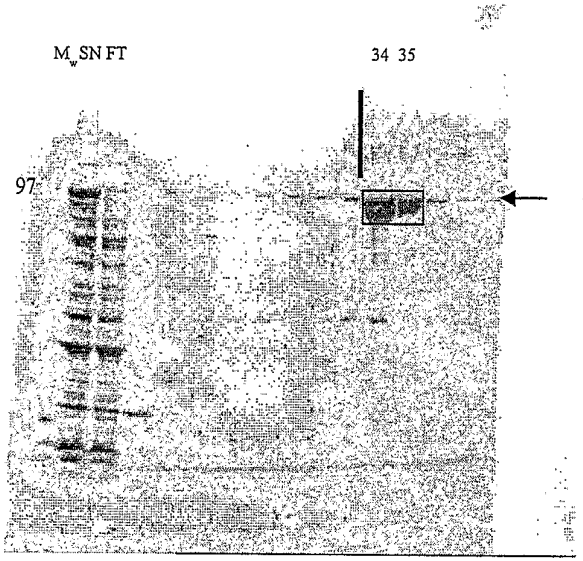
Expression and purification:

- pET 21b+-*rrg.A-6*
- purified in soluble form (stored at –80°C; in NaCl $_{physiol.}$)

Results:

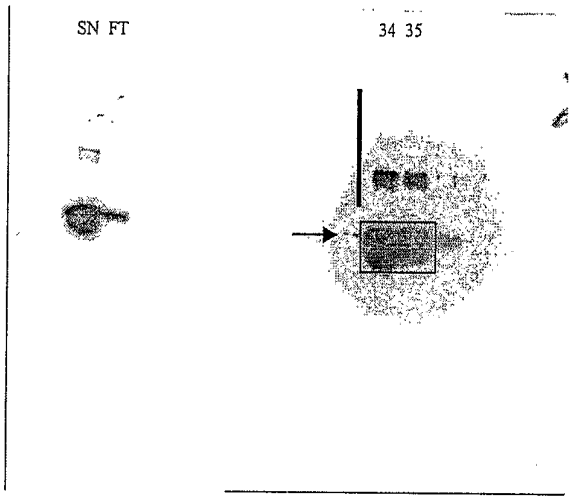
• protein conc.: 1,1 mg/ml

A



SDS-page

B

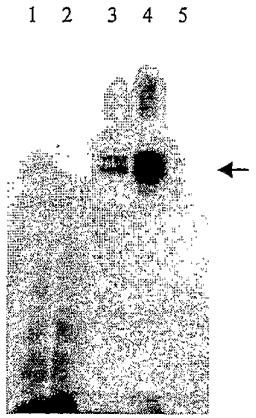


Western blot (anti-HIS)

S. pneumoniae pili proteins – antibody production (mice)

Sp0463 (rrgB):

α-rrgB (1/10000)

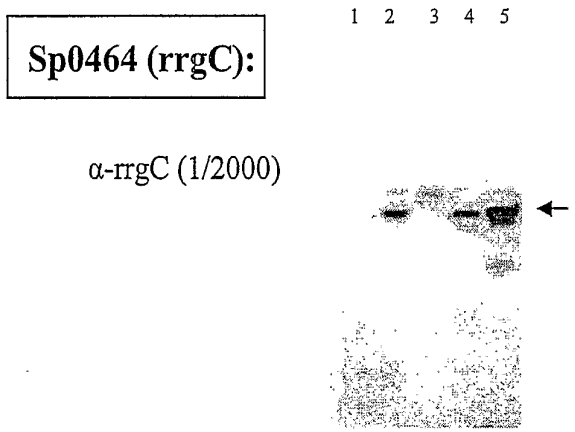


1: rrgB (E.coli background)
2: rrgC (E.coli background)
3: rrgB purified 1 µl
4: rrgB purified 5 µl
5: rrgC purified 5 µl

Figure 191

S. pneumoniae pili proteins – antibody production (mice)

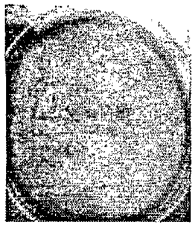
Sp0464 (rrgC):



1: rrgB (E.coli background)
2: rrgC (E.coli background)
3: rrgB purified 5 µl
4: rrgC purified 1 µl
5: rrgC purified 5 µl

Figure 192

S. pneumoniae TIGR4 pilus purification I – cultivation + digestion



***S.pneumoniae* TIGR4**
Blood plates
ON/37°C/13h

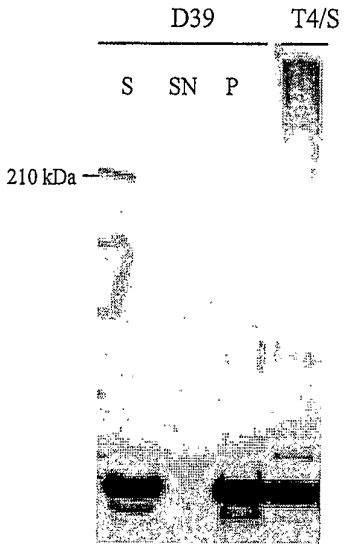
- Resuspension in PBS/washing
- **Resuspension in PPB** (4-6 plates/ml)
  (20% sucrose, 10mM $MgCl_2$,
  50mM NaPPi pH6,3)

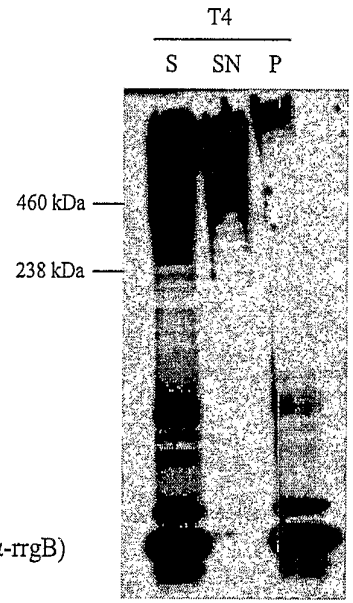
- **Digestion with Mutanolysin**
  (N-Acetyl Muramidase)
  37°C, ~10 h
- ∋

Pellet

SN

Sucrose Density gradient centrifugation





Western (1.AK. α-rrgB)

Figure 193

S. pneumoniae TIGR4 pilus purification II - Sucrose density gradient centrifugation

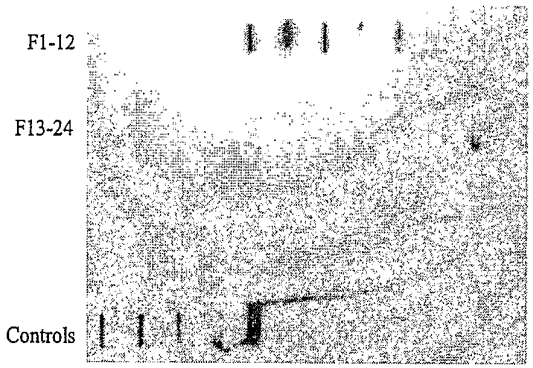
950µl SN
25-56% linear sucrose gradient
SW40; 38000, 4°C, 16h

↓

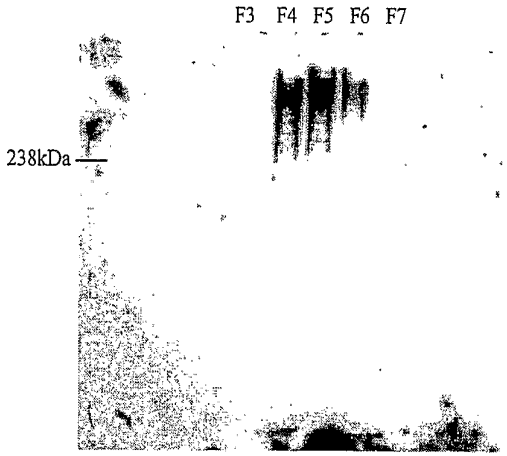
24 x 500 µl fractions
(Gradient master)

↓

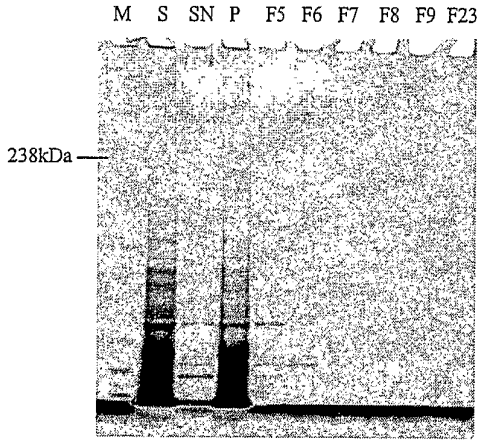
Gel filtration



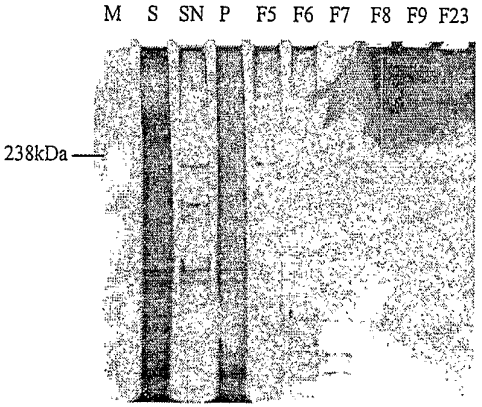
Slot blot (fractions sucrose grad.)



Western (1.AK. α-rrgB)



Coomassie staining

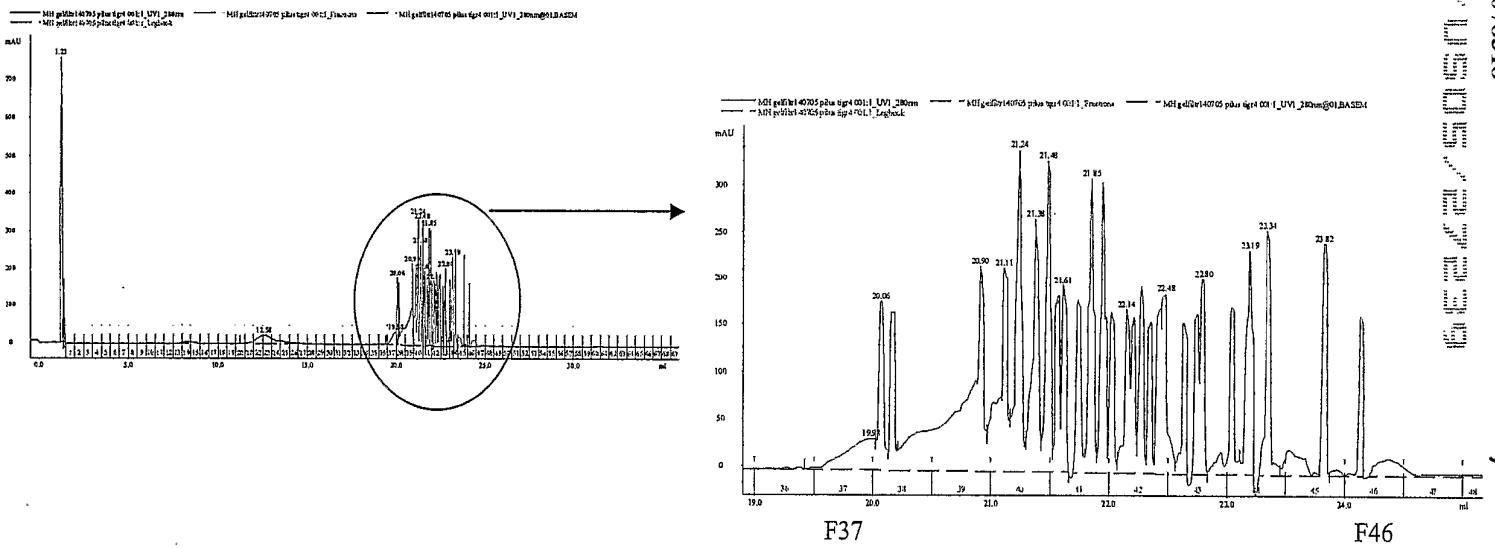


Silver Staining

Figure 194

S. pneumoniae TIGR4 pilus purification III – Gel filtration

400 µl Fr.5
Superdex 200



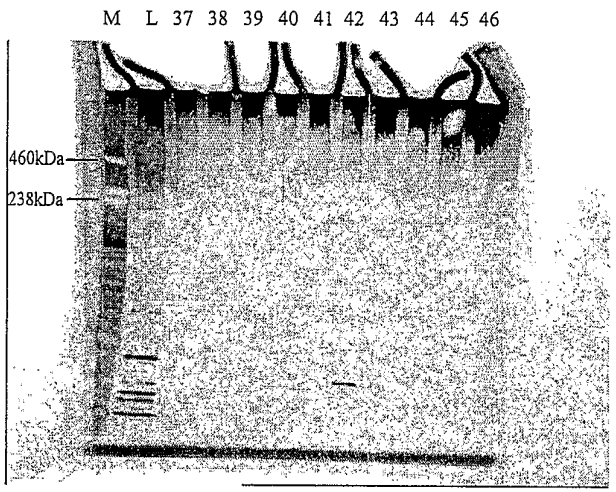


Figure 195

PCT/US05/27239

```
14CSR          ------GTTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
670            TGAGTTGTTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
6BF            ------GTTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
6BSP           ----------GCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
19AH           ------GTTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
23FPO          -------TTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
19FTW          ---------------TTTTCATTATAAATCTTATGGGACTTTTTTGATACTCAAAAAGC
9VSP           -------TTTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
TIGR4          --------TTAGGCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
23FTW          ----------GCGCTTTTCATTATAAGTCTTATGGGACTTTTTTGATACTCAAAAAGC
                         ********** ******************************

14CSR          CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
670            CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
6BF            CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
6BSP           CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
19AH           CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
23FPO          CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
19FTW          CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
9VSP           CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
TIGR4          CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
23FTW          CCTATAATCTCCACAGTGGGATTTACCCACTACAGAAATTATAGAGCCAGAAAAAACACT
               ************************************************************

14CSR          TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
670            TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
6BF            TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
6BSP           TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
19AH           TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
23FPO          TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
19FTW          TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
9VSP           TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
TIGR4          TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
23FTW          TTTGTTCACTAGCAGAAACTAGAGAGCAGAAGTGTTTTTCTGTTCAGATTTACCCAAAAC
               ************************************************************

14CSR          TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
670            TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
6BF            TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
6BSP           TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
19AH           TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
23FPO          TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
19FTW          TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
9VSP           TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
TIGR4          TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
23FTW          TGGGAAATATGGGGATAAGAATAGAGATGGCTTAGGAAGCCCCTTTTTGTGTGTAGACAG
               ************************************************************

14CSR          TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
670            TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
6BF            TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
6BSP           TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
19AH           TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
23FPO          TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
19FTW          TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
9VSP           TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
TIGR4          TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
23FTW          TACGATGAACTTATAACAAATAGTGAGCCTTTTTAGCAATCATTGCGACCCGTTTGTCAA
               ************************************************************
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Figure 196A

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14CSR           AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
670             AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
6BF             AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
6BSP            AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
19AH            AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
23FPO           AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
19FTW           AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
9VSP            AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
TIGR4           AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
23FTW           AAGCCTCTTTTCGGATATCTACAATTGTCTGATAGATGAGACGCTGTTGGCTAACATGCA
                ************************************************************

14CSR           AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
670             AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
6BF             AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
6BSP            AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
19AH            AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
23FPO           AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
19FTW           AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
9VSP            AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
TIGR4           AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
23FTW           AATCTAAGGCAATCGTCAAAAAGTGATGTTTCCCTTTGGGATACTGCTTTTTAACGTAAG
                ************************************************************

14CSR           GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
670             GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
6BF             GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
6BSP            GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
19AH            GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
23FPO           GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
19FTW           GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
9VSP            GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
TIGR4           GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
23FTW           GCAGGTATTCTTTCGTTGTAATAATAATCAATGGCTCTGTCAAATGCTCCTCTGAAGGAG
                ************************************************************

14CSR           GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
670             GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
6BF             GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
6BSP            GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
19AH            GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
23FPO           GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
19FTW           GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
9VSP            GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
TIGR4           GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
23FTW           GAGGACTAATTAGAATATTGTATCCTGTAACAGAGGCAACTTTGTCAGTAAAATTCCGTA
                ************************************************************

14CSR           AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
670             AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
6BF             AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
6BSP            AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
19AH            AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
23FPO           AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
19FTW           AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
9VSP            AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
TIGR4           AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
23FTW           AAATAATGGACTTTATTAAGTTTACATCTGCTTGATTATTTAAAATGATAAAAATCGGGA
                ************************************************************
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Figure 196B

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14CSR       TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
670         TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
6BF         TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
6BSP        TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
19AH        TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
23FPO       TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
19FTW       TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
9VSP        TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
TIGR4       TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
23FTW       TAGCAGGTAGTGAGGAAAAGATGGTTTCTGTCAAGTAGAGTGAGAAAAGGTACAGCCGAT
            ************************************************************

14CSR       GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
670         GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
6BF         GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
6BSP        GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
19AH        GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
23FPO       GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
19FTW       GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
9VSP        GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
TIGR4       GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
23FTW       GCTGGTCGATAACTCCTTCAATCTTCTGCTCAGTCATCCACTCTTGAACAATTGCTTTCG
            ************************************************************

14CSR       AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
670         AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
6BF         AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
6BSP        AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
19AH        AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
23FPO       AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
19FTW       AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
9VSP        AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
TIGR4       AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
23FTW       AAATATGATACAGTGGCTTGTCGCTTTCAATCCCATAATGTTCGTAATAATTATAATAGG
            ************************************************************

14CSR       GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
670         GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
6BF         GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
6BSP        GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
19AH        GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
23FPO       GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
19FTW       GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
9VSP        GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
TIGR4       GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
23FTW       GAACTAGATTTTGTAAACCAAACAAAAACGTTCTTGTTAAGAAAGTCAGTGCTGTTAAAA
            ************************************************************

I4CSR       AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
670         AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
6BF         AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
6BSP        AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
19AH        AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
23FPO       AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
19FTW       AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
9VSP        AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
TIGR4       AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
23FTW       AAGAAAGAGAATTCGAAATGTCATTTCCTAAGATATTCTTGAACTTGGATAGTAGATGCT
            ************************************************************
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Figure 196C

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14CSR           TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
670             TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
6BF             TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
6BSP            TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
19AH            TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
23FPO           TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
19FTW           TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
9VSP            TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
TIGR4           TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
23FTW           TTCCTCTTGTATGCTGAAGAATCAGTTGAATAGTATGAGTCTTTTTTTCTTGATTCCATT
                ************************************************************

14CSR           TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
670             TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
6BF             TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
6BSP            TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
19AH            TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
23FPO           TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
19FTW           TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
9VSP            TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
TIGR4           TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
23FTW           TGTCCTTGGAAAACGAAGAATTAGCAGAACAATAAACCAAAAAGATATAATCCAGTTCTT
                ************************************************************

14CSR           CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
670             CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
6BF             CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
6BSP            CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
19AH            CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
23FPO           CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
19FTW           CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
9VSP            CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
TIGR4           CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
23FTW           CCTGAGTAAAAGTCATGTTGGCATGTGGCTCTAAGTAAGTTTGGCAATGTTCCATCAAAA
                ************************************************************

14CSR           TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
670             TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
6BF             TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
6BSP            TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
19AH            TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
23FPO           TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
19FTW           TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
9VSP            TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
TIGR4           TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
23FTW           TCGGATACATAAAGAGGTTTTTTAATTTTTCAAACTCTTTGGACTCAGGGAACTCAAGTG
                ************************************************************

14CSR           GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
670             GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
6BF             GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
6BSP            GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
19AH            GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
23FPO           GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
19FTW           GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
9VSP            GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
TIGR4           GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
23FTW           GAAATTCCCGACGTTTCCAAGTGAGTGCCACTAGTATGCTAAAATGAACATACTCGTCAG
                ************************************************************
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Figure 196D

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14CSR           GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
670             GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
6BF             GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
6BSP            GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
19AH            GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
23FPO           GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
19FTW           GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
9VSP            GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
TIGR4           GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
23FTW           GTGTGATTTCTAACAGTTCATGACTGAGTTGAGAATTAGACTGCACAATCATATGTGTGA
                ************************************************************

14CSR           CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
670             CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
6BF             CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
6BSP            CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
19AH            CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
23FPO           CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
19FTW           CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
9VSP            CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
TIGR4           CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
23FTW           CCCAATCCATACTTCCATCATTCAAATCATAAATCTCAATACCAAAATGAAACTGGAGGA
                ************************************************************

14CSR           GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
670             GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
6BF             GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
6BSP            GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
19AH            GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
23FPO           GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
19FTW           GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
9VSP            GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTT-CACAAGGTCCA
TIGR4           GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
23FTW           GTGCAATTAAAAAACGAATGCGATATTCAGGACCAACTACTTGATTTTTCACAAGGTCCA
                ************************************************** ***********

14CSR           AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
670             AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
6BF             AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
6BSP            AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
19AH            AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
23FPO           AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
19FTW           AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
9VSP            AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
TIGR4           AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
23FTW           AACCTACTGAACGTAGTAACAAGCCACACTTTTGTCGTACGCGGTAGCCTGTTGCGATGG
                ************************************************************

14CSR           AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
670             AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
6BF             AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
6BSP            AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
19AH            AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
23FPO           AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
19FTW           AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
9VSP            AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
TIGR4           AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
23FTW           AAATATACTCTTTTTGTGTAAATTCGTTAAAGCTTTGATTACCTTGTAGTAGAAAGAAGC
                ************************************************************
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Figure 196E

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14CSR       GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
670         GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
6BF         GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
6BSP        GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
19AH        GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
23FPO       GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
19FTW       GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
9VSP        GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
TIGR4       GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
23FTW       GGAGTATTTTTAAAATAGTTGATTGGTTATAAAGCTGATGGAAGTAATAATTCGTTTGAT
            ************************************************************

14CSR       GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
670         GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
6BF         GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
6BSP        GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
19AH        GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
23FPO       GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
19FTW       GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
9VSP        GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
TIGR4       GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
23FTW       GAGAATGGTGTTCGATTAATTGAACTTGTTGCGTATCTAAATTAAATGTCAACTCTTCCT
            ************************************************************

14CSR       CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
670         CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
6BF         CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
6BSP        CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
19AH        CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
23FPO       CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
19FTW       CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
9VSP        CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
TIGR4       CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
23FTW       CGAATGTTTCTTGTAATTCCTGCAAAATGCTTAGGAGACTTTTAGATTGTAATGAAGTTA
            ************************************************************

14CSR       AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
670         AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
6BF         AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
6BSP        AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
19AH        AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
23FPO       AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
19FTW       AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
9VSP        AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
TIGR4       AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
23FTW       AAGTAGACAGTTCATCTAGTTCAATAGACCGAATATCCAATAATATATTTAAAATGGTAA
            ************************************************************

14CSR       TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
670         TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
6BF         TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
6BSP        TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
19AH        TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
23FPO       TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
19FTW       TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
9VSP        TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
TIGR4       TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
23FTW       TTTTATCTGTAATTCTTTTTTCAATGTATTTGTTTAGCATAGTTACCGAATCTTAGTTGC
            ************************************************************
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Figure 196F

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14CSR           ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
670             ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
6BF             ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
6BSP            ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
19AH            ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
23FPO           ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
19FTW           ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
9VSP            ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
TIGR4           ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
23FTW           ATATAGATAATTTTAATTATTATAATACAAAAGAAACTAATTGTCTTGTCAAAAAGGTTG
                ************************************************************

14CSR           TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
670             TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
6BF             TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
6BSP            TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
19AH            TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
23FPO           TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
19FTW           TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
9VSP            TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
TIGR4           TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
23FTW           TGGAATTTCCGACTTTATTGATAAAACAGCATGTAATAAAAGGCATTTTAAAGATAGTAA
                ************************************************************

14CSR           TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
670             TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
6BF             TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
6BSP            TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
19AH            TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
23FPO           TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
19FTW           TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
9VSP            TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTT-ATCAAAT
TIGR4           TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
23FTW           TGAGTATTGGTGGAGTTTTATGGCTTATTTTTTTTTATTAGAAAATATTTTTTTTATCAAAT
                ************************************************** *******

14CSR           ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
670             ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
6BF             ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
6BSP            ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
19AH            ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
23FPO           ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
19FTW           ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
9VSP            ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
TIGR4           ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
23FTW           ATTGTCGTTCTATAAAAAAATATGTGATAAAAATATCTATTGTGATGGAAGTTGTTTTAA
                ************************************************************

14CSR           TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
670             TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
6BF             TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
6BSP            TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
19AH            TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
23FPO           TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
19FTW           TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
9VSP            TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
TIGR4           TTTATACTAGGATAGTTAATAGTAATACTATACTATACTATATTGTATACAAGTGTGTCA
23FTW           TTTATACTAGGATAGTTAATAGTAATACTATACTA-----TATTGTATACAAGTGTGTCA
                ********************************     ********************
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Figure 196G

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14CSR           TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
670             TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
6BF             TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
6BSP            TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
19AH            TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
23FPO           TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
19FTW           TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
9VSP            TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
TIGR4           TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
23FTW           TTGCCAGGTTGAGAAGATAGCTATAACGCACTTTTATACGCTTTTGCTACGTTTGTTAGT
                ************************************************************

14CSR           GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
670             GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
6BF             GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
6BSP            GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
19AH            GAACGGATTAACTCAGCATGAGATAAATTTTATCAGAA--TAAGTAATCCGTTTCTTCGT
23FPO           GAACGGATTAACTCAGCATGAGATAAATTTTATCAGAA--TAAGTAATCCGTTTCTTCGT
19FTW           GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
9VSP            GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
TIGR4           GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
23FTW           GAACGGATTAACTCAG--TGAGATAAATTTTATCAGAACATAAGTAATCCGTTTCTTCGT
                ****************  **********************  **********************

14CSR           GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
670             GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
6BF             GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
6BSP            GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
19AH            GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
23FPO           GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
19FTW           GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
9VSP            GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
TIGR4           GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
23FTW           GTATACAGATTGAAAGTACCTATGAATCATAGAAGGATTAACTTGTTCTATGAATAATGC
                ************************************************************

14CSR           TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
670             TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
6BF             TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
6BSP            TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
19AH            TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
23FPO           TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
19FTW           TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
9VSP            TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
TIGR4           TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
23FTW           TTAACAGGGAGACACACATGAAAAAAGTAAGAAAGATATTTCAGAAGGCAGTTGCAGGAC
                ************************************************************

14CSR           TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
670             TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
6BF             TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
6BSP            TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
19AH            TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
23FPO           TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
19FTW           TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
9VSP            TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
TIGR4           TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
23FTW           TGTGCTGTATATCTCAGTTGACAGCTTTTTCTTCGATAGTTGCTTTAGCAGAAACGCCTG
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Figure 196H

PCT/US05/27239

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14CSR       AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
670         AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
6BF         AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
6BSP        AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
19AH        AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
23FPO       AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
19FTW       AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
9VSP        AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
TIGR4       AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
23FTW       AAACCAGTCCAGCGATAGGAAAAGTAGTGATTAAGGAGACAGGCGAAGGAGGAGCGCTTC
            ************************************************************

14CSR       TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
670         TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
6BF         TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
6BSP        TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
19AH        TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
23FPO       TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
19FTW       TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
9VSP        TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGAATGGCACAACTGTTTCGCAAAGGA
TIGR4       TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
23FTW       TAGGAGATGCCGTCTTTGAGTTGAAAAACAATACGGATGGCACAACTGTTTCGCAAAGGA
            ********************************** ************************

14CSR       CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
670         CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
6BF         CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
6BSP        CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
19AH        CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
23FPO       CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
19FTW       CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
9VSP        CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
TIGR4       CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
23FTW       CAGAGGCGCAAACAGGAGAAGCGATATTTTCAAACATAAAACCTGGGACATACACCTTGA
            ************************************************************

14CSR       CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
670         CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
6BF         CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
6BSP        CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
19AH        CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
23FPO       CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
19FTW       CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
9VSP        CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAACGGACTGTTGAAGTTG
TIGR4       CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
23FTW       CAGAAGCCCAACCTCCAGTTGGTTATAAACCCTCTACTAAACAATGGACTGTTGAAGTTG
            ******************************************* ***************

14CSR       AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
670         AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
6BF         AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
6BSP        AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
19AH        AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
23FPO       AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
19FTW       AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
9VSP        AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
TIGR4       AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
23FTW       AGAAGAATGGTCGGACGACTGTCCAAGGTGAACAGGTAGAAAATCGAGAAGAGGCTCTAT
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Figure 196I

PCT/US05/27239

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14CSR           CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
670             CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
6BF             CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
6BSP            CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
19AH            CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
23FPO           CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
19FTW           CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
9VSP            CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
TIGR4           CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
23FTW           CTGACCAGTATCCACAAACAGGGACTTATCCAGATGTTCAAACACCTTATCAGATTATTA
                ************************************************************

14CSR           AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
670             AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
6BF             AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
6BSP            AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
19AH            AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
23FPO           AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
19FTW           AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
9VSP            AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
TIGR4           AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
23FTW           AGGTAGATGGTTCGGAAAAAAACGGACAGCACAAGGCGTTGAATCCGAATCCATATGAAC
                ************************************************************

14CSR           GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
670             GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
6BF             GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
6BSP            GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
19AH            GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
23FPO           GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
19FTW           GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
9VSP            GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
TIGR4           GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
23FTW           GTGTGATTCCAGAAGGTACACTTTCAAAGAGAATTTATCAAGTGAATAATTTGGATGATA
                ************************************************************

14CSR           ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
670             ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
6BF             ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
6BSP            ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
19AH            ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
23FPO           ACCAATATGGAATCGAGTTGACGGTTAGTGGTAAAACGACGGTTGAAACGAAAGAAGCCT
19FTW           ACCAATATGGAATCGAATTGACGGTTAGTGGGAAAACAGTGTATGAACGAAAAGATAAGT
9VSP            ACCAATATGGAATCGAATTGACGGTTAGTGGGAAAACAGTGTATGAACGAAAAGATAAGT
TIGR4           ACCAATATGGAATCGAATTGACGGTTAGTGGGAAAACAGTGTATGAACAAAAAGATAAGT
23FTW           ACCAATATGGAATCGAATTGACGGTTAGTGGGAAAACAGTGTATGAACAAAAAGATAAGT
                ********** ********** *****  *  ****  *****  *

14CSR           CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
670             CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
6BF             CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
6BSP            CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
19AH            CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
23FPO           CTACTCCGCTAGATGTTGTTATTCTATTAGATAACTCCAATAGTATGAGTAATATTCGAC
19FTW           CTGTGCCGCTGGATGTCGTTATCTTGCTCGATAACTCAAATAGTATGAGTAACATTCGAA
9VSP            CTGTGCCGCTGGATGTCGTTATCTTGCTCGATAACTCAAATAGTATGAGTAACATTCGAA
TIGR4           CTGTGCCGCTGGATGTCGTTATCTTGCTCGATAACTCAAATAGTATGAGTAACATTCGAA
23FTW           CTGTGCCGCTGGATGTCGTTATCTTGCTCGATAACTCAAATAGTATGAGTAACATTCGAA
                **  ***** ***** *****  *  * ******** ********** ******
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Figure 196J

PCT/US05/27239

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14CSR       ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
670         ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
6BF         ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
6BSP        ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
19AH        ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
23FPO       ATAATCATGCCCATCGAGCGGAAAAAGCGGGAGAAGCGACACGAGCCCTTGTAGATAAGA
19FTW       ACAAGAATGCTCGACGTGCGGAAAGAGCTGGTGAGGCGACACGTTCTCTTATTGATAAAA
9VSP        ACAAGAATGCTCGACGTGCGGAAAGAGCTGGTGAGGCGACACGTTCTCTTATTGATAAAA
TIGR4       ACAAGAATGCTCGACGTGCGGAAAGAGCTGGTGAGGCGACACGTTCTCTTATTGATAAAA
23FTW       ACAAGAATGCTCGACGTGCGGAAAGAGCTGGTGAGGCGACACGTTCTCTTATTGATAAAA
            * **  **** *  ** ******* *** ** ** ********  * *** * ***** *

14CSR       TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
670         TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
6BF         TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
6BSP        TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
19AH        TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
23FPO       TTACCTCCAATCCAGATAATCGAGTAGCACTTGTGACTTATGGCTCAACTATCTTTGACG
19FTW       TTACATCTGATCCAGAAAATAGGGTAGCGCTTGTGACTTATGCTTCCACTATCTTTGATG
9VSP        TTACATCTGATCCAGAAAATAGGGTAGCGCTTGTGACTTATGCTTCCACTATCTTTGATG
TIGR4       TTACATCTGATTCAGAAAATAGGGTAGCGCTTGTGACTTATGCTTCCACTATCTTTGATG
23FTW       TTACATCTGATCCAGAAAATAGGGTAGCGCTTGTGACTTATGCTTCCACTATCTTTGATG
            **** **  ** **** *** * ***** *************  ** *********** *

14CSR       GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
670         GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
6BF         GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
6BSP        GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
19AH        GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
23FPO       GTTCAGAAGCTACTGTGGAAAAAGGGGTAGCAGATGCGAACGGAAAAATATTGAATGACT
19FTW       GGACCGAGTTTACAGTAGAAAAAGGGGTAGCAGATAAAAACGGAAAACGATTGAATGATT
9VSP        GGACCGAGTTTACAGTAGAAAAAGGGGTAGCAGATAAAAACGGAAAACGATTGAATGATT
TIGR4       GGACCGAGTTTACAGTAGAAAAAGGGGTAGCAGATAAAAACGGAAAGCGATTGAATGATT
23FTW       GGACCGAGTTTACAGTAGAAAAAGGGGTAGCAGATAAAAACGGAAAACGATTGAATGATT
            *  * **   *** ** ******************   ********   ********* *

14CSR       CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
670         CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
6BF         CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
6BSP        CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
19AH        CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
23FPO       CAGCTTTATGGACGTTCGATCGTACGACGTTTACAGCTAAAACTTATAATTATAGCTTTT
19FTW       CTCTTTTTTTGGAATTATGATCAGACGAGTTTTACAACCAATACCAAAGATTATAGTTATT
9VSP        CTCTTTTTTTGGAATTATGATCAGACGAGTTTTACAACCAATACCAAAGATTATAGTTATT
TIGR4       CTCTTTTTTTGGAATTATGATCAGACGAGTTTTACAACCAATACCAAAGATTATAGTTATT
23FTW       CTCTTTTTTTGGAATTATGATCAGACGAGTTTTACAACCAATACCAAAGATTATAGTTATT
            *   *** **** *  ****  ****  ****** * ** **  *  ******* * **

14CSR       TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
670         TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
6BF         TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
6BSP        TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
19AH        TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
23FPO       TAAATCTCACATCAGATCCTACTGATATTCAAACTATTAAGGATAGGATTCCATCAGATG
19FTW       TAAAGCTGACTAATGATAAGAATGACATTGTAGAATTAAAAAATAAGGTACCTACCGAGG
9VSP        TAAAGCTGACTAATGATAAGAATGACATTGTAGAATTAAAAAATAAGGTACCTACCGAGG
TIGR4       TAAAGCTGACTAATGATAAGAATGACATTGTAGAATTAAAAAATAAGGTACCTACCGAGG
23FTW       TAAAGCTGACTAATGATAAGAATGACATTGTAGAATTAAAAAATAAGGTACCTACCGAGG
            **** ** **    ***   * *** ***  *    * **  *** * * **  * ** *
```

Figure 196K

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14CSR           CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
670             CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
6BF             CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
6BSP            CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
19AH            CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
23FPO           CAGAGGAATTGAACAAAGACAAATTGATGTATCAATTCGGCGCGACTTTTACCCAGAAGG
19FTW           CAGAAGATCATGATGGAAATAGATTGATGTACCAATTCGGTGCCACTTTTACTCAGAAAG
9VSP            CAGAAGACCATGATGGAAATAGATTGATGTACCAATTCGGTGCCACTTTTACTCAGAAAG
TIGR4           CAGAAGACCATGATGGAAATAGATTGATGTACCAATTCGGTGCCACTTTTACTCAGAAAG
23FTW           CAGAAGACCATGATGGAAATAGATTGATGTACCAATTCGGTGCCACTTTTACTCAGAAAG
                **** **     *   * * * ********* ******** ** ******** ***** *

14CSR           CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
670             CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
6BF             CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
6BSP            CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
19AH            CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
23FPO           CTTTGATGACCGCTGATGATATCTTGACAAAGCAGGCAAGACCAAACAGTAAAAAGGTTA
19FTW           CTTTGATGAAGGCAGATGAGATTTTGACACAACAAGCGAGACAAAATAGTCAAAAAGTCA
9VSP            CTTTGATGAAGGCCGATGAGATTTTGACACAACAAGCGAGACAAAATAGTCAAAAAGTCA
TIGR4           CTTTGATGAAGGCAGATGAGATTTTGACACAACAAGCGAGACAAAATAGTCAAAAAGTCA
23FTW           CTTTGATGAAGGCAGATGAGATTTTGACACAACAAGCGAGACAAAATAGTCAAAAAGTCA
                *********  ** ***** ** ****** * ** ** **** *** *** **** ** *

14CSR           TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
670             TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
6BF             TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
6BSP            TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
19AH            TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
23FPO           TTTTCCACATTACAGATGGTGTTCCGACTATGTCATATCCAATTAATTTTAAATATACAG
19FTW           TTTTCCATATTACGGATGGTGTCCCAACTATGTCGTATCCGATTAATTTTAATCATGCTA
9VSP            TTTTCCATATTACGGATGGTGTCCCAACTATGTCGTATCCGATTAATTTTAATCATGCTA
TIGR4           TTTTCCATATTACGGATGGTGTCCCAACTATGTCGTATCCGATTAATTTTAATCATGCTA
23FTW           TTTTCCATATTACGGATGGTGTCCCAACTATGTCGTATCCGATTAATTTTAATCATGCTA
                ******* ***** ******** ** ******** ***** ***********  ** *

14CSR           GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
670             GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
6BF             GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
6BSP            GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
19AH            GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
23FPO           GAACGACGCAATCGTACAGAACTCAGCTGAATA-ATTTTAAAGCAAAAACTCCAAATAGT
19FTW           CGTTTGCTCCATCATATCAAAATCAACTAAATGCATTTTTTAGTAAAT-CTCCTAATAAA
9VSP            CGTTTGCTCCATCATATCAAAATCAACTAAATGTATTTTTTAGTAAAT-CTCCTAATAAA
TIGR4           CGTTTGCTCCATCATATCAAAATCAACTAAATGCATTTTTTAGTAAAT-CTCCTAATAAA
23FTW           CGTTTGCTCCATCATATCAAAATCAACTAAATGCATTTTTTAGTAAAT-CTCCTAATAAA
                      * * *** **   ** *** ** ***  *****  ** ***  **** ****

14CSR           AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
670             AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
6BF             AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
6BSP            AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
19AH            AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
23FPO           AGCGGGATATTACTGGAGGACTTTGTTACATGGTCAGCAGATGGTGAACATAAGATTGTT
19FTW           GATGGAATACTATTAAGTGATTTTATTACGCAAGCAACTAGTGGAGAACATACAATTGTA
9VSP            GATGGAATACTATTAAGTGATTTTATTACGCAAGCAACTAGTGGAGAACATACAATTGTA
TIGR4           GATGGAATACTATTAAGTGATTTTATTACGCAAGCAACTAGTGGAGAACATACAATTGTA
23FTW           GATGGAATACTATTAAGTGATTTTATTACGCAAGCAACTAGTGGAGAACATACAATTGTA
                   ** *** ** *    ** *** ****     ** *   *** *******  *****
```

Figure 196L

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14CSR           CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
670             CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
6BF             CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
6BSP            CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
19AH            CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
23FPO           CGTGGAGATGGTGAAAGTTATCAGATGTTTACGAAGAAACCTGT------AACAGACCAA
19FTW           CGCGGAGATGGGCAAAGTTACCAGATGTTTACAGATAAGACAGTTTATGAAAAAGGTGCT
9VSP            CGCGGAGATGGGCAAAGTTACCAGATGTTTACAGATAAGACAGTTTATGAAAAAGGTGCT
TIGR4           CGCGGAGATGGGCAAAGTTACCAGATGTTTACAGATAAGACAGTTTATGAAAAAGGTGCT
23FTW           CGCGGAGATGGGCAAAGTTACCAGATGTTTACAGATAAGACAGTTTATGAAAAAGGTGCT
                ** ********  ******* ***********  * **  * **       ** **

14CSR           TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
670             TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
6BF             TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
6BSP            TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
19AH            TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
23FPO           TACGGAGTTCATCAAAT---ACTTTCAATCACCTCCATGGAGCAGAGAGCTAAATTAGTT
19FTW           CCTGCAGCTTTCCCAGTTAAACCTGAAAAATATTCTGAAATGAAGGCGGTTGGTTATGCA
9VSP            CCTGCAGCTTTCCCAGTTAAACCTGAAAAATATTCTGAAATGAAGGCGGTTGGTTATGCA
TIGR4           CCTGCAGCTTTCCCAGTTAAACCTGAAAAATATTCTGAAATGAAGGCGGCTGGTTATGCA
23FTW           CCTGCAGCTTTCCCAGTTAAACCTGAAAAATATTCTGAAATGAAGGCGGCTGGTTATGCA
                   * ** *   * * *   ** *  **      **      * **   * *   *  *

14CSR           TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
670             TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
6BF             TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
6BSP            TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
19AH            TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
23FPO           TCAGCGGGATATAGGTTCTATGGAACTGACTTGTATTTATATTGGCGTGATAGTATTCTA
19FTW           GTTATAGGCGATCCAATTAATGGTGGATATATTTGGCTTAATTGGAGAGAGAGTATTCTG
9VSP            GTTATAGGCGATCCAATTAATGGTGGATATATTTGGCTTAATTGGAGAGAGAGTATTCTG
TIGR4           GTTATAGGCGATCCAATTAATGGTGGATATATTTGGCTTAATTGGAGAGAGAGTATTCTG
23FTW           GTTATAGGCGATCCAATTAATGGTGGATATATTTGGCTTAATTGGAGAGAGAGTATTCTG
                      **  **    *  ****     *  * *   *  ***** * ** ********

14CSR           GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
670             GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
6BF             GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
6BSP            GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
19AH            GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
23FPO           GCCTATCCATTTAACTCTAGTACCGATTGGATTACCAACCATGGTGACCCTACGACTTGG
19FTW           GCTTATCCGTTTAATTCTAATACTGCTAAAATTACCAATCATGGTGCCCCTACAAGATGG
9VSP            GCTTATCCGTTTAATTCTAATACTGCTAAAATTACCAATCATGGTGACCCTACAAGATGG
TIGR4           GCTTATCCGTTTAATTCTAATACTGCTAAAATTACCAATCATGGTGACCCTACAAGATGG
23FTW           GCTTATCCGTTTAATTCTAATACTGCTAAAATTACCAATCATGGTGACCCTACAAGATGG
                ** ***** ***** **** *** * *   ******** ******* ****** *  ***

14CSR           TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
670             TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
6BF             TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
6BSP            TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
19AH            TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
23FPO           TATTATAACGGAAATATGGCTCAGGATGGCTATGATGTCTTCACTGTTGGGGTTGGTGTA
19FTW           TACTATAACGGGAATATTGCTCCTGATGGGTATGATGTCTTTACGGTAGGTATTGGTATT
9VSP            TACTATAACGGGAATATTGCTCCTGATGGGTATGATGTCTTTACGGTAGGTATTGGTATT
TIGR4           TACTATAACGGGAATATTGCTCCTGATGGGTATGATGTCTTTACGGTAGGTATTGGTATT
23FTW           TACTATAACGGGAATATTGCTCCTGATGGGTATGATGTCTTTACGGTAGGTATTGGTATT
                ** ******** ***** ****  ***** *********** ** ** **  ***** *
```

Figure 196M

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14CSR       AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
670         AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
6BF         AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
6BSP        AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
19AH        AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
23FPO       AACGGGGATCCTGGTACGGATGAAGCAACGGCTACTAGATTTATGCAGAGCATCTCTAGT
19FTW       AACGGAGATCCTGGTACGGATGAAGCAACGGCTACTAGTTTTATGCAAAGTATTTCTAGT
9VSP        AACGGAGATCCTGGTACGGATGAAGCAACGGCTACTAGTTTTATGCAAAGTATTTCTAGT
TIGR4       AACGGAGATCCTGGTACGGATGAAGCAACGGCTACTAGTTTTATGCAAAGTATTTCTAGT
23FTW       AACGGAGATCCTGGTACGGATGAAGCAACGGCTACTAGTTTTATGCAAAGTATTTCTAGT
            ***** ******************************** ******** ** ** *******

14CSR       TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
670         TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
6BF         TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
6BSP        TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
19AH        TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
23FPO       TCTCCTGACAACTACACTAACGTAGCAGATCCATCTCAGATTTTACAAGAATTGAATCGC
19FTW       AAACCTGAAAACTATACCAATGTTACTGACACGACAAAAATATTGGAACAGTTGAATCGT
9VSP        AAACCTGAAAACTATACCAATGTTACTGACACGACAAAAATATTGGAACAGTTGAATCGT
TIGR4       AAACCTGAAAACTATACCAATGTTACTGACACGACAAAAATATTGGAACAGTTGAATCGT
23FTW       AAACCTGAAAACTATACCAATGTTACTGACACGACAAAAATATTGGAACAGTTGAATCGT
               ***** ***** ** ** **  * **  *  *  * ** **  ** * ********

14CSR       TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
670         TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
6BF         TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
6BSP        TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
19AH        TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
23FPO       TACTTCTATACTATCGTCAATGAGAAGAAATCTATCGAAAATGGTACGATTACAGACCCG
19FTW       TATTTCCACACCATCGTAACTGAAAAGAAATCAATTGAGAATGGTACGATTACAGATCCG
9VSP        TATTTCCACACCATCGTAACTGAAAAGAAATCAATTGAGAATGGTACGATTACAGATCCG
TIGR4       TATTTCCACACCATCGTAACTGAAAAGAAATCAATTGAGAATGGTACGATTACAGATCCG
23FTW       TATTTCCACACCATCGTAACTGAAAAGAAATCAATTGAGAATGGTACGATTACAGATCCG
            ** *** * ** ***** * *** ******** ** ** ***************** ***

14CSR       ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
670         ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
6BF         ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
6BSP        ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
19AH        ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
23FPO       ATGGGTGAACTAATTGATTTCCAATTGGGAGCAGATGGAAGGTTTGATCCAGCGGATTAC
19FTW       ATGGGTGAGTTAATTGATTTGCAATTGGGCACAGATGGAAGATTTGATCCAGCAGATTAC
9VSP        ATGGGTGAGTTAATTGATTTGCAATTGGGCACAGATGGAAGATTTGATCCAGCAGATTAC
TIGR4       ATGGGTGAGTTAATTGATTTGCAATTGGGCACAGATGGAAGATTTGATCCAGCAGATTAC
23FTW       ATGGGTGAGTTAATTGATTTGCAATTGGGCACAGATGGAAGATTTGATCCAGCAGATTAC
            ********  ********** ********  ********** ********** ******

14CSR       ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
670         ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
6BF         ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
6BSP        ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
19AH        ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
23FPO       ACTTTAACTGCAAACGATGGTAGTTCGTTGGTGAATAATGTCCCTACTGGGGGACCACAA
19FTW       ACTTTAACTGCAAACGATGGTAGTCGCTTGGAGAATGGACAAGCTGTAGGTGGTCCACAA
9VSP        ACTTTAACTGCAAACGATGGTAGTCGCTTGGAGAATGGACAAGCTGTAGGTGGTCCACAA
TIGR4       ACTTTAACTGCAAACGATGGTAGTCGCTTGGAGAATGGACAAGCTGTAGGTGGTCCACAA
23FTW       ACTTTAACTGCAAACGATGGTAGTCGCTTGGAGAATGGACAAGCTGTAGGTGGTCCACAA
            ************************  **** ****       **   ** ** *******
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Figure 196N

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14CSR       AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
670         AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
6BF         AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
6BSP        AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
19AH        AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
23FPO       AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
19FTW       AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
9VSP        AATGATGGTGGCTTGCTAAAAAATGCAAAAGTGTTCTATGATACGACTGAGAAAAGGATT
TIGR4       AATGATGGTGGTTTGTTAAAAAATGCAAAAGTGCTCTATGATACGACTGAGAAAAGGATT
23FTW       AATGATGGTGGTTTGTTAAAAAATGCAAAAGTGCTCTATGATACGACTGAGAAAAGGATT
            *********** *** ***************** **************************

14CSR       CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
670         CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
6BF         CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
6BSP        CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
19AH        CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
23FPO       CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
19FTW       CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
9VSP        CGTGTAACAGGTTTGTACCTTGGAACGGGTGAAAAAGTTACATTGACTTATAATGTTCGC
TIGR4       CGTGTAACAGGTCTGTACCTTGGAACGGATGAAAAAGTTACGTTGACCTACAATGTTCGT
23FTW       CGTGTAACAGGTCTGTACCTTGGAACGGATGAAAAAGTTACGTTGACCTACAATGTTCGT
            ************ *************** ************ ***** ** ********

14CSR       TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
670         TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
6BF         TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
6BSP        TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
19AH        TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
23FPO       TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
19FTW       TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
9VSP        TTGAATGACCAATTTGTAAGCAATAAATTCTATGACACGAATGGTCGAACAACCCTACAC
TIGR4       TTGAATGATGAGTTTGTAAGCAATAAATTTTATGATACCAATGGTCGAACAACCTTACAT
23FTW       TTGAATGATGAGTTTGTAAGCAATAAATTTTATGATACCAATGGTCGAACAACCTTACAT
            ********  * ***************** ***** ** *************** ****

14CSR       CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
670         CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
6BF         CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
6BSP        CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
19AH        CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
23FPO       CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTA
19FTW       CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTG
9VSP        CCTAAGGAAGTAGAAAAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTG
TIGR4       CCTAAGGAAGTAGAACAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTG
23FTW       CCTAAGGAAGTAGAACAGAACACAGTGCGCGACTTCCCGATTCCTAAGATTCGTGATGTG
            *************** ******************************************

14CSR       CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
670         CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
6BF         CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
6BSP        CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
19AH        CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
23FPO       CGAAAGTATCCAGAAATCACAATTCCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
19FTW       CGAAAATATCCAGCAATTACGATTGCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
9VSP        CGAAAATATCCAGCAATTACGATTGCAAAAGAGAAAAAACTTGGTGAAATTGAGTTTATT
TIGR4       CGGAAGTATCCAGAAATCACAATTTCAAAAGAGAAAAAACTTGGTGACATTGAGTTTATT
23FTW       CGGAAGTATCCAGAAATCACAATTTCAAAAGAGAAAAAACTTGGTGACATTGAGTTTATT
            ** ** ******* *** ** *** ********************** ************
```

Figure 196O

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14CSR           AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
670             AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
6BF             AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
6BSP            AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
19AH            AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
23FPO           AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
19FTW           AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
9VSP            AAGATCAATAAGAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
TIGR4           AAGGTCAATAAAAATGATAAAAAACCACTGAGAGGTGCGGTCTTTAGTCTTCAAAAACAA
23FTW           AAGGTCAATAAAAATGATAAAAAACCACTGAGAGATGCGGTCTTTAGTCTTCAAAAACAA
                *** ******* ********************** ************************

14CSR           CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
670             CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
6BF             CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
6BSP            CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
19AH            CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
23FPO           CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
19FTW           CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
9VSP            CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
TIGR4           CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
23FTW           CATCCGGATTATCCAGATATTTATGGAGCTATTGATCAAAATGGCACTTATCAAAATGTG
                ************************************************************

14CSR           AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
670             AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
6BF             AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
6BSP            AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
19AH            AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
23FPO           AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
19FTW           AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
9VSP            AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
TIGR4           AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
23FTW           AGAACAGGTGAAGATGGTAAGTTGACCTTTAAAAATCTGTCAGATGGGAAATATCGATTA
                ************************************************************

14CSR           TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
670             TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
6BF             TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
6BSP            TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
19AH            TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
23FPO           TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
19FTW           TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
9VSP            TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
TIGR4           TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
23FTW           TTTGAAAATTCTGAACCAGCTGGTTATAAACCCGTTCAAAATAAGCCTATCGTTGCCTTC
                ************************************************************

14CSR           CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
670             CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
6BF             CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
6BSP            CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
19AH            CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
23FPO           CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
19FTW           CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
9VSP            CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
TIGR4           CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
23FTW           CAAATAGTAAATGGAGAAGTCAGAGATGTGACTTCAATCGTTCCACAAGATATACCAGCG
                ************************************************************
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Figure 196P

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14CSR           GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
670             GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
6BF             GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
6BSP            GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
19AH            GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
23FPO           GGTTACGAGTTTACGAATGATAAGCACTATATCACAAATGAGCCAATTCCTCCAAAAAGA
19FTW           GGTTACGAGTTTACGAATGATAAGCACTATATTACCAATGAACCTATTCCTCCAAAGAGA
9VSP            GGTTACGAGTTTACGAATGATAAGCACTATATTACCAATGAACCTATTCCTCCAAAGAGA
TIGR4           GGTTACGAGTTTACGAATGATAAGCACTATATTACCAATGAACCTATTCCTCCAAAGAGA
23FTW           GGTTACGAGTTTACGAATGATAAGCACTATATTACCAATGAACCTATTCCTCCAAAGAGA
                ********************************** ** ***** ** *********** ***

14CSR           GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
670             GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
6BF             GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
6BSP            GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
19AH            GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
23FPO           GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
19FTW           GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
9VSP            GAATATCCTCGAACTGGTGGTATCGGAATGTTGCTATTCTATCTGATAGGTTGCATGATG
TIGR4           GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
23FTW           GAATATCCTCGAACTGGTGGTATCGGAATGTTGCCATTCTATCTGATAGGTTGCATGATG
                ********************************** ************************

14CSR           ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAGCAATGAGAAATGAT
670             ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAGCAATGAGAAATGAT
6BF             ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAGCAATGAGAAATGAT
6BSP            ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAGCAATGAGAAATGAT
19AH            ATGGGAGGAGTTCTATTATACACACGGAAAAATCCGTAAAGTGTAGCAATGAGAAATGAT
23FPO           ATGGGAGGAGTTCTATTATACACACGGAAAAATCCGTAAAGTGTAGCAATGAGAAATGAT
19FTW           ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAG-------AAATGAT
9VSP            ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAG-------AAATGAT
TIGR4           ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAG-------AAATGAT
23FTW           ATGGGAGGAGTTCTATTATACACACGGAAACATCCGTAAAGTGTAG-------AAATGAT
                ****************************** ***************       *******

14CSR           AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
670             AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
6BF             AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
6BSP            AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
19AH            AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
23FPO           AATATCGATACTCTGAGCGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
19FTW           AATATCTATGTTCTGAACAATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
9VSP            AATATCTATGTTCTGAACGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
TIGR4           AATATCTATGTTCTGAACGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
23FTW           AATATCTATGTTCTGAACGATACTTTTAAGAAGTAGCACTCAAGAAGAGATTTAAGTTTA
                ****** **  ***** * ****************************************

14CSR           CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
670             CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
6BF             CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
6BSP            CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
19AH            CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
23FPO           CTTGGTGAAAACAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
19FTW           CTTGGTGAAACCAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
9VSP            CTTGGTGAAACCAGTTTTCTTCGCCAAGTAAACCACCATTGAAAGGGGAGATGTTTTCGA
TIGR4           CTTGGTGAAACCTGTTTTATTCGT-AAGTAAACTATCATTGAAAGGGGAGATGTTTTCGA
23FTW           CTTGGTGAAACCTGTTTTATTCGT-AAGTAAACTATCATTGAAAGGGGAGATGTTTTCGA
                ********** * ***** ****  ******** * ************************
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Figure 196Q

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14CSR           AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
670             AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
6BF             AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
6BSP            AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
19AH            AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
23FPO           AAACTTGCACAGAAAAAAGGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
19FTW           AAACTTGCACAGAAAAA-GGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
9VSP            AAACTTGCACAGAAAAA-GGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
TIGR4           AAACTTGCACAGAAAAA-GGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
23FTW           AAACTTGCACAGAAAAA-GGATTATTATTGTCATGTGTAATTCATTACATTGCTCACAGT
                ***************** ****************************************

14CSR           TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
670             TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
6BF             TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
6BSP            TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
19AH            TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
23FPO           TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
19FTW           TGATTTTAAGAGATA--AATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
9VSP            TGATTTTAAGAGATA--AATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
TIGR4           TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
23FTW           TGATTTTAAGAGATATGAATAAGGAGAAATCATGAAATCAATCAACAAATTTTTAACAAT
                *************** ****************************************

14CSR           GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
670             GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
6BF             GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
6BSP            GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
19AH            GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
23FPO           GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
19FTW           GCTTGCTGCCTTATTATTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
9VSP            GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
TIGR4           GCTTGCTGCCTTATTACTGACAGCGAGTAGCCTGTTTTCAGCTGCAACAGTTTTTGCGGC
23FTW           ACTTGCTGCCTTATTACTGACAGTGAGTAGCCTGTTCTCAGCTGCAACAGTTTTTGCGGC
                 *************** ****** ************ ***********************

14CSR           GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
670             GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
6BF             GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
6BSP            GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
19AH            GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
23FPO           GGACAATGTTAGTACAGCACCAGATGCTGTTACTAAAACTTTAACAATCCATAAGTTACT
19FTW           TGG-GACGACA--ACAACATCTGTTACCGTTCATAAACTATTGGCAACAGATGGGGATAT
9VSP            TGG-GACGACA--ACAACATCTGTTACCGTTCATAAACTATTGGCAACAGATGGGGATAT
TIGR4           TGG-GACGACA--ACAACATCTGTTACCGTTCATAAACTATTGGCAACAGATGGGGATAT
23FTW           GGA-ACAAAAA--ACTAAGACACTTACAGTTCATAAATTATTGATGACAGATCAAGAGCT
                 *         *  **     *   * * ***  ****   **    *   **       *

14CSR           GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
670             GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
6BF             GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
6BSP            GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
19AH            GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
23FPO           GCTCTCA---GAAGATGATTTAAAGACTTGGGATACAAACGGTCCTAA-AGGATATGATG
19FTW           GGATAAAATTGCAAATGAGTTAGAAACAGGTAACTATGCTGGTAATAA-AGTGGGTGTTC
9VSP            GGATAAAATTGCAAATGAGTTAGAAACAGGTAACTATGCTGGTAATAA-AGTGGGTGTTC
TIGR4           GGATAAAATTGCAAATGAGTTAGAAACAGGTAACTATGCTGGTAATAA-AGTGGGTGTTC
23FTW           TGAC------GCTTGGAATTCTGATGCGATTACTACTGCAGGTTATGACGGTTCGCAAAA
                        *      * *   *  *             ***  * *  *
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Figure 196R

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14CSR           GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
670             GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
6BF             GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
6BSP            GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
19AH            GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
23FPO           GAACTCAATCTAGTTTAAAAGATTTAACTGGAGTTGTAGCTG----AGGAAATTCCAAAT
19FTW           TACCTGCA---AATGCAAAAGAAATTGCCGGTGTTATGTTCGTTTGGACAAATACTAATA
9VSP            TACCTGCA---AATGCAAAAGAAATTGCCGGTGTTATGTTCGTTTGGACAAATACTAATA
TIGR4           TACCTGCA---AATGCAAAAGAAATTGCCGGTGTTATGTTCGTTTGGACAAATACTAATA
23FTW           T-TTTGAA---CAGTTCAAACAACTTCAAGGTGTTCCACAAG---GAGTAACCGAAATCT
                    *  *         *** *  *    ** ***      *       **     *

14CSR           GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
670             GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
6BF             GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
6BSP            GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
19AH            GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
23FPO           GTATACTT-------TGAATTACAAAAGTATA-ATTTGACTGATGGT--AAGGAAAAAGA
19FTW           ATGAAATTATTGATGAAAATGGCCAAACTCTAGGAGTGAATATTGATCCACAAACATTTA
9VSP            ATGAAATTATTGATGAAAATGGCCAAACTCTAGGAGTGAATATTGATCCACAAACATTTA
TIGR4           ATGAAATTATTGATGAAAATGGCCAAACTCTAGGAGTGAATATTGATCCACAAACATTTA
23FTW           CTGGTGTTGC--ATTCGAGTTACAGAGTTATACGGGTCCTCAAGGA--AAAGAACAAGAA
                 *    **         * *  *  *  * **    *       *    *   * *   *

14CSR           AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
670             AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
6BF             AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
6BSP            AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
19AH            AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
23FPO           AAATCTTAAAGATGATAGTAAATGGACAACAGTTCATGGTGGTTTGACAACTAAAGATGG
19FTW           AACTCTCAGGGGCAATGCCGGC--AACTGCAATGAAAAAATTAACAGAAGCTGAA---GG
9VSP            AACTCTCAGGGGCAATGCCGGC--AACTGCAATGAAAAAATTAACAGAAGCTGAA---GG
TIGR4           AACTCTCAGGGGCAATGCCGGC--AACTGCAATGAAAAAATTAACAGAAGCTGAA---GG
23FTW           AA-TTTAACGAATGATGCGGTTTGGACTGCGGTTAATAAAGGTGTGACGACTGAAACAGG
                ** * * *      **          **  *  *  *                ** **   **

14CSR           ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
670             ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
6BF             ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
6BSP            ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
19AH            ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
23FPO           ACTTAAAATTGAAACCAGTACTCTTAAAGGTGT---GTATCGTATTCGTGAGGATAGAAC
19FTW           AGCTAAATTTAACACGGCAAATTTACCAGCTGCTAAGTATAAAATTTATGAAATTCACAG
9VSP            AGCTAAATTTAACACGGCAAATTTACCAGCTGCTAAGTATAAAATTTATGAAATTCACAG
TIGR4           AGCTAAATTTAACACGGCAAATTTACCAGCTGCTAAGTATAAAATTTATGAAATTCACAG
23FTW           TGTTAAATTTGATACTGAAGTTTTACAAGGGAC---ATATCGTCTTGTCGAAGTACGTAA
                   **** ** * **       * *   **         ***    **   **       *

14CSR           AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
670             AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
6BF             AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
6BSP            AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
19AH            AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
23FPO           AAAGACTACCTATGTTGGTCCTAATGGGCAAGTATTAACAGGTTCAAAAGCCGTACCTGC
19FTW           TTTATCAACTTATGTCGGTGAAGATGGAGCAACCTTAACAGGTTCTAAAGCAGTTCCAAT
9VSP            TTTATCAACTTATGTCGGTGAAGATGGAGCAACCTTAACAGGTTCTAAAGCAGTTCCAAT
TIGR4           TTTATCAACTTATGTCGGTGAAGATGGAGCAACCTTAACAGGTTCTAAAGCAGTTCCAAT
23FTW           AGAATCGACTTATGTCGGTCCAAATGGTAAAGTTTTAACAGGTATGAAAGCTGTTCCTGC
                     * ** ***** ***    ****   *   *********   ***** ** **
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Figure 196S

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14CSR           TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
670             TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
6BF             TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
6BSP            TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
19AH            TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
23FPO           TCTTGTAACTCTTCCACTTGTTAACAATAATGGTACAGTAATTGATGCACATGTTTTCCC
19FTW           TGAAATTGAATTACCATT---------GAACGATGTTGTGGA---TGCGCATGTGTATCC
9VSP            TGAAATTGAATTACCATT---------GAACGATGTTGTGGA---TGCGCATGTGTATCC
TIGR4           TGAAATTGAATTACCATT---------GAACGATGTTGTGGA---TGCGCATGTGTATCC
23FTW           TTTAATTACTCTGCCGCTTGTAAACCAAAATGGTGTTGTAGAAAATGCACATGTCTATCC
                *    *     * **  *          ** * *   **      *** ***** *  **

14CSR           TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
670             TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
6BF             TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
6BSP            TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
19AH            TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
23FPO           TAAAAATTCATATAATAAACCAGTTGTAGATAAAAGAATTGCTGATACTTTGAATTATAA
19FTW           AAAAAATACAGAAGCAAAGCCAAAAATTGATAAAGATTTCAAAGGTAAAGCAAATCCAGA
9VSP            AAAAAATACAGAAGCAAAGCCAAAAATTGATAAAGATTTCAAAGGTAAAGCAAATCCAGA
TIGR4           AAAAAATACAGAAGCAAAGCCAAAAATTGATAAAGATTTCAAAGGTAAAGCAAATCCAGA
23FTW           AAAGAATTCTGAAGACAAACCTACAGCAACGAAAACATTTGATACTGCAGCAGGTTTCGT
                 ** *** *  *    ** **          ***    *      *       *

14CSR           CGATCAA----------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
670             CGATCAA----------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
6BF             CGATCAA----------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
6BSP            CGATCAA----------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
19AH            CGATCAA---------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
23FPO           CGATCAA----------AATGGTCTGTCTATCGGTACTAAAATCCCATATGTTGT----TA
19FTW           TACACCACGTGTAGATAAAGATACACCTGTGAACCACCAAGTTGGAGATGTTGTAGAGTA
9VSP            TACACCACGTGTAGATAAAGATACACCTGTGAACCACCAAGTTGGAGATGTTGTAGAGTA
TIGR4           TACACCACGTGTAGATAAAGATACACCTGTGAACCACCAAGTTGGAGATGTTGTAGAGTA
23FTW           AGATCCAGGTG---AAAAAGGTTTAGCAATTGGCACTAAGGTACCGTATATTGT----TA
                    * *         ** * *    *  *        *  *     ** ****    **

14CSR           ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
670             ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
6BF             ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
6BSP            ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
19AH            ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
23FPO           ATACAACAATTCCAAGTAATGCAACATT----------TGCAACTTCATTTTGGTCAGATG
19FTW           CGA-AATTGTTACAAAAATTCCAGCACTTGCTAATTATGCAACAGCAAACTGGAGCGATA
9VSP            CGA-AATTGTTACAAAAATTCCAGCACTTGCTAATTATGCAACAGCAAACTGGAGCGATA
TIGR4           CGA-AATTGTTACAAAAATTCCAGCACTTGCTAATTATGCAACAGCAAACTGGAGCGATA
23FTW           CAACAACTATTCCGAAAAACTCAACTCT----------TGCAACAGCTTTCTGGTCAGATG
                  * **   ** * *  *   ** *  *          ******  *    ***   ***

14CSR           AAATGACAGAAGGTCTAACTTATAATGAAGA-GTAACAA---TTACTTTGAATAATGTAG
670             AAATGACAGAAGGTCTAACTTATAATGAAGATGTAACAA---TTACTTTGAATAATGTAG
6BF             AAATGACAGAAGGTCTAACTTATAATGAAGATGTAACAA---TTACTTTGAATAATGTAG
6BSP            AAATGACAGAAGGTCTAACTTATAATGAAGATGTAACAA---TTACTTTGAATAATGTAG
19AH            AAATGACAGAAGGTCTAACTTATAATGAAGATGTAACAA---TTACTTTGAATAATGTAG
23FPO           AAATGACAGAAGGTCTAACTTATAATGAAGATGTAACAA---TTACTTTGAATAATGTAG
19FTW           GAATGACTGAAGGTTTGGCATTCAACAAAGGTACAGTGAAAGTAACTGTTGATGATGTTG
9VSP            GAATGACTGAAGGTTTGGCATTCAACAAAGGTACAGTGAAAGTAACTGTTGATGATGTTG
TIGR4           GAATGACTGAAGGTTTGGCATTCAACAAAGGTACAGTGAAAGTAACTGTTGATGATGTTG
23FTW           AAATGACAGAAGGTCTAGATTATAATGGTGATGTAGTT---GTTAATTATAATGGTCAAC
                 ****** ****** *    *  **    *    *       * * *    **  *
```

Figure 196T

```
14CSR           CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAAATAATGGCTTTAACTTAAAATTAA
670             CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAAATAATGGCTTTAACTTAAAATTAA
6BF             CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAAATAATGGCTTTAACTTAAAATTAA
6BSP            CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAAATAATGGCTTTAACTTAAAATTAA
19AH            CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAAYTAATGGCTTTAACTTAAAATTAA
23FPO           CTATGGATCAAGCTGATTATGAAGTCACTAAAGGAATTAATGGCTTTAACTTAAAATTAA
19FTW           CACTTGAAGCAGGTGATTATGCTCTAACAGAAGTAGCAACTGGTTTTGATTTGAAATTAA
9VSP            CACTTGAAGCAGGTGATTATGCTCTAACAGAAGTAGCAACTGGTTTTGATTTGAAATTAA
TIGR4           CACTTGAAGCAGGTGATTATGCTCTAACAGAAGTAGCAACTGGTTTTGATTTGAAATTAA
23FTW           CGCTTGATAATTCTCATTACACATTAGAAGCAGGTCATAATGGCTTTATCTTGAAGTTAA
                *  * **      * ****     *      **     * *** ***   ** ** ****

14CSR           CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
670             CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
6BF             CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
6BSP            CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
19AH            CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
23FPO           CAGAAGCAGGTTTAGCTAAAATTAATGGTAAGGATGCAGACCAAAAAATCCAAATTACTT
19FTW           CAGATGCTGGTTTAGCTAAAGTGAATGACCAAAACGCTGAAAAAACTGTGAAAATCACTT
9VSP            CAGATGCTGGTTTAGCTAAAGTGAATGACCAAAACGCTGAAAAAACTGTGAAAATCACTT
TIGR4           CAGATGCTGGTTTAGCTAAAGTGAATGACCAAAACGCTGAAAAAACTGTGAAAATCACTT
23FTW           ATGAAAAAGGTCTGGAAGCAATCAACGGTAAAGATGCAGAAGCAACAATTACGTTGAAGT
                  **    *** * *    * * ** *   *  * ** **   **   *     * *  *

14CSR           ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCTGAAAGTAACGATATTACAT
670             ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCTGAAAGTAACGATATTACAT
6BF             ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCCGAAAGTAACGATATTACAT
6BSP            ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCTGAAAGTAACGATATTACAT
19AH            ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCTGAAAGTAACGATATTACAT
23FPO           ACTCAGCTACTTTGAACTCACTTGCTGTTGCAGACATTCCTGAAAGTAACGATATTACAT
19FTW           ATTCGGCAACATTGAATGACAAAGCAATTGTAGAAGTACCAGAATCTAATGATGTAACAT
9VSP            ATTCGGCAACATTGAATGACAAAGCAATTGTAGAAGTACCAGAATCTAATGATGTAACAT
TIGR4           ATTCGGCAACATTGAATGACAAAGCAATTGTAGAAGTACCAGAATCTAATGATGTAACAT
23FTW           ATACTGCAACTTTAAATGCTCTTGCTGTTGCTGATGTGCCAGAAGCGAATGATGTAACAT
                *  * ** ** ** **        **  ***  **  * ** ***   ** *** * ****

14CSR           ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
670             ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
6BF             ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
6BSP            ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
19AH            ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
23FPO           ATCATTACGGAAATCATCAAGATCATGGGAATACTCCAAAACCAACTAAACC---TAATA
19FTW           TTAACTATGGTAATAATCCAGATCACGGGAATACTCCAAAGCCGAATAAGCCAAATGAAA
9VSP            TTAACTATGGTAATAATCCAGATCACGGGAATACTCCAAAGCCGAATAAGCCAAATGAAA
TIGR4           TTAACTATGGTAATAATCCAGATCACGGGAATACTCCAAAGCCGAATAAGCCAAATGAAA
23FTW           TCCATTATGGAAACAACCCAGGTCATGGTAACACTCCAAAACCAAACAAACC---TAAAA
                   * ** ** **  * * * ** *** ** ** ******** ** *  ** **   * * *

14CSR           ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
670             ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
6BF             ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
6BSP            ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
19AH            ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
23FPO           ATGGTCAAATTACAGTAACTAAGACATGGG--------ACAGTCA-ACCTGCTCCTGAGG
19FTW           ACGGCGATTTGACATTGACCAAGACATGGGTTGATGCTACAGGTGCACCAATTCCGGCTG
9VSP            ACGGCGATTTGACATTGACCAAGACATGGGTTGATGCTACAGGTGCACCAATTCCGGCTG
TIGR4           ACGGCGATTTGACATTGACCAAGACATGGGTTGATGCTACAGGTGCACCAATTCCGGCTG
23FTW           ACGGTGAACTTACAATTACTAAAACATGGGCTGATGCTAAAGATGCTCCTAT---AGCAG
                * **  *  * *** * ** ** *******         * **     **       *  *
```

Figure 196U

```
14CSR           GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
670             GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
6BF             GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
6BSP            GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
19AH            GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
23FPO           GGGTGAAAGCGACTGTTCAACTTGTAAATGCCAAGACTGGTGAGAAAGTCGGTGCTCC--
19FTW           GAGCTGAAGCAACGTTCGATTTGGTTAATGCTCAGACTGGTAAAGTTGTACAAAC-----
9VSP            GAGCTGAAGCAACGTTCGATTTGGTTAATGCTCAGACTGGTAAAGTTGTACAAAC-----
TIGR4           GAGCTGAAGCAACGTTCGATTTGGTTAATGCTCAGACTGGTAAAGTTGTACAAAC-----
23FTW           GTGTAGAAGTAACTTTTGATTTGGTAAATGCTCAGACAGGTGAGGTCGTTAAAGTACCTG
                * *   ***  **  *  *  * ** *****  **** *** *    **

14CSR           ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
670             ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
6BF             ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
6BSP            ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
19AH            ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
23FPO           ----------TGTAGAACTTTC---AGAAAATAATTGGACATATACTTGGAGTGGTC
19FTW           ----------TGTAACTTTGAC---AACAGACAAAAATACAGTTACTGTTAACGGAT
9VSP            ----------TGTAACTTTGAC---AACAGACAAAAATACAGTTACTGTTAACGGAT
TIGR4           ----------TGTAACTTTGAC---AACAGACAAAAATACAGTTACTGTTAACGGAT
23FTW           GACATGAAACAGGTATTGTATTGAATCAAACAAATAATTGGACATTTACTGCTACAGGTC
                          * *     *      *  * * **    ***  ****   *  **

14CSR           TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
670             TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
6BF             TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
6BSP            TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
19AH            TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
23FPO           TAGATAATTCTATTGAATACAAAGTTGAAGAA--GAATAT-AATGGATACTCAGCTGAAT
19FTW           TGGATAAAAATACAGAATATAAATTCGTTGAACGTAGTATAAAAGGGTATTCAGCAGATT
9VSP            TGGATAAAAATACAGAATATAAATTCGTTGAACGTAGTATAAAAGGGTATTCAGCAGATT
TIGR4           TGGATAAAAATACAGAATATAAATTCGTTGAACGTAGTATAAAAGGGTATTCAGCAGATT
23FTW           TTGATAATAATACAGAATATAAATTTGTTGAACGGACAATTAAGGGATATTCTGCAGATT
                * *****   **  ***** *** * *  ***   *  ** ** ** ** ** ** ** *

14CSR           ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
670             ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
6BF             ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
6BSP            ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
19AH            ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
23FPO           ACACAGTAGAGAGCAAA---GGGAAGTTGGGGGTAAAAAACTGGAAAGATAATAACCCAG
19FTW           ATCAAGAAATCACTACAGCTGGAGAAATTGCTGTCAAGAACTGGAAAGACGAAAATCCAA
9VSP            ATCAAGAAATCACTACAGCTGGAGAAATTGCTGTCAAGAACTGGAAAGACGAAAATCCAA
TIGR4           ATCAAGAAATCACTACAGCTGGAGAAATTGCTGTCAAGAACTGGAAAGACGAAAATCCAA
23FTW           ACCAAACAATTACTGAAACAGGAAAAATTGCTGTTAAAAACTGGAAAGATGAAAATCCAG
                *   *  *   *    *   **  *  * *  ** ** ***********  * ** ***

14CSR           CTCCAATCAATC-TGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
670             CTCCAATCAATCCTGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
6BF             CTCCAATCAATCCTGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
6BSP            CTCCAATCAATCCTGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
19AH            CTCCAATCAATCCTGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
23FPO           CTCCAATCAATCTTGAAGAACCACGTGTAAAAACATACGGTAAAAAGTTTGTCAAAGTAG
19FTW           AACCACTTGATCCAACAGAGCCAAAAGTTGTTACATATGGTAAAAAGTTTGTCAAAGTTA
9VSP            AACCACTTGATCCAACAGAGCCAAAAGTTGTTACATATGGTAAAAAGTTTGTCAAAGTTA
TIGR4           AACCACTTGATCCAACAGAGCCAAAAGTTGTTACATATGGTAAAAAGTTTGTCAAAGTTA
23FTW           AACCAATAAATCCTGAAGAGCCACGTGTAAAAACATATGGTAAAAAATTCGTTAAGGTTG
                  *** *  ***    *** ***   **    ***** ******** ** ** ** **
```

Figure 196V

PCT/US05/27239

```
14CSR       ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
670         ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
6BF         ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
6BSP        ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
19AH        ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
23FPO       ACCAAAAAGATACTCGTCTAGAAAATGCGCAGTTCGTTGTTAAAAAAGCAGATAGC---A
19FTW       ATGATAAAGATAATCGTTTAGCTGGGGCAGAATTTGTAATTGCAAATGCTGATAATGCTG
9VSP        ATGATAAAGATAATCGTTTAGCTGGGGCAGAATTTGTAATTGCAAATGCTGATAATGCTG
TIGR4       ATGATAAAGATAATCGTTTAGCTGGGGCAGAATTTGTAATTGCAAATGCTGATAATGCTG
23FTW       ACCAAAAAGACGAACGCTTAAAAGAAGCACAATTCGTTGTGAAGAATG--AGCAA----G
                *  * *****    **  **      **  * ** **  *    ** *     *

14CSR       ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
670         ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
6BF         ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
6BSP        ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
19AH        ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
23FPO       ATAAATATATTGCCTTTAAGTCAACTGCACAACAAGCT--GCAGATGAAAAAGCAGCAGC
19FTW       GTCAATATTTAGCACGTAAAGCAG--ATAAAGTGAGTCAAGAAGAGAAGCAGTTGGTTGT
9VSP        GTCAATATTTAGCACGTAAAGCAG--ATAAAGTGAGTCAAGAAGAGAAGCAGTTGGTTGT
TIGR4       GTCAATATTTAGCACGTAAAGCAG--ATAAAGTGAGTCAAGAAGAGAAGCAGTTGGTTGT
23FTW       GGAAATATCTTGCACTCAAATCTGCAGCACAACAAGCT--GTAAATGAGAAAGCTGCCGC
               ***** * **    **  *     * *   **    * * *  *  *    *  *

14CSR       AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
670         AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
6BF         AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
6BSP        AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
19AH        AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
23FPO       AACTGCAAAACAAAAATTGGATGCAGCGGTAGCAGCTTACA---CAAATGCTGCAGATAA
19FTW       TACAACAAAGGATGCTTTAGATAGAGCAGTTGCTGCTTATAACGCTCTTACTGCACAACA
9VSP        TACAACAAAGGATGCTTTAGATAGAGCAGTTGCTGCTTATAACGCTCTTACTGCACAACA
TIGR4       TACAACAAAGGATGCTTTAGATAGAGCAGTTGCTGCTTATAACGCTCTTACTGCACAACA
23FTW       AGAAGCGAAACAAGCGCTAGATGCAGCGATAGCAGCCTATA---CAAATGCTGCA-GATA
                 * **  *     * ***  ***  * ** ** ** *   *   * *****    *

14CSR       GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
670         GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
6BF         GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
6BSP        GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
19AH        GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
23FPO       GCAAGCCGCTCAA------GCTCTAGTAGATCAAGCACAGCAAGAATACAATGTAGCTTA
19FTW       ACAAACTCAGCAAGAAAAAGAGAAAGTTGACAAAGCTCAAGCTGCTTATAATGCTGCTGT
9VSP        ACAAACTCAGCAAGAAAAAGAGAAAGTTGACAAAGCTCAAGCTGCTTATAATGCTGCTGT
TIGR4       ACAAACTCAGCAAGAAAAAGAGAAAGTTGACAAAGCTCAAGCTGCTTATAATGCTGCTGT
23FTW       A-AAATGCAGCAC----AAGCTGTAGTAGATGCTGCGCAAAAAACATATAATGACAATTA
              **      **       *    *** **    ** **       ** ****    *

14CSR       CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
670         CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
6BF         CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
6BSP        CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
19AH        CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
23FPO       CAAAGAAGCCAA------ATTTGGTTATGTTGAAGTAGCTGGAAAAGATGAAGCAATGGT
19FTW       GATTGCTGCCAACAATGCATTTGAATGGGTGGCAGATAAGGACAATGAAAATGTTGTGAA
9VSP        GATTGCTGCCAACAATGCATTTGAATGGGTGGCAGATAAGGACAATGAAAATGTTGTGAA
TIGR4       GATTGCTGCCAACAATGCATTTGAATGGGTGGCAGATAAGGACAATGAAAATGTTGTGAA
23FTW       CAGAGCAGCTAG------ATTTGGCTATGTAGAAGTAGAGAGAAAAGAAGATGCGTTAGT
             *  *  ** *       *****  *  ** * **        ** **  * *   *
```

Figure 196W

```
14CSR           TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
670             TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
6BF             TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
6BSP            TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
19AH            TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
23FPO           TCTTACTTCTAATACGGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGTACTTATAA
19FTW           ATTAGTTTCTGATGCACAAGGTCGCTTTGAAATTACAGGCCTTCTTGCAGGTACATATTA
9VSP            ATTAGTTTCTGATGCACAAGGTCGCTTTGAAATTACAGGCCTTCTTGCAGGTACATATTA
TIGR4           ATTAGTTTCTGATGCACAAGGTCGCTTTGAAATTACAGGCCTTCTTGCAGGTACATATTA
23FTW           TCTTACTTCTAACACTGATGGTCAATTCCAAATTTCAGGTCTTGCTGCTGGAAGCTACAC
                  *   **** *  *  * ****  **  ***** **** ***  *** ** *  **

14CSR           ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
670             ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
6BF             ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
6BSP            ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
19AH            ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
23FPO           ATTAGAAGAAATTAAAGCTCCAGAAGGTTTTGCGAAAAT---TGATGATGTAGAATTTGT
19FTW           CTTAGAAGAAACAAAACAGCCTGCTGGTTATGCATTACTAACTAGCCGTCAGAAATTTGA
9VSP            CTTAGAAGAAACAAAACAGCCTGCTGGTTATGCATTACTAACTAGTCGTCAGAAATTTGA
TIGR4           CTTAGAAGAAACAAAACAGCCTGCTGGTTATGCATTACTAACTAGCCGTCAGAAATTTGA
23FTW           GTTGGAAGAAACAAAAGCTCCAGAAGGCTTTGCAAAACT---TGGAGATGTGAAGTTTGA
                 ** *******  ***   ** *  ** * ***   * *   *     *    * ****

14CSR           TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
670             TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
6BF             TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
6BSP            TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
19AH            TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
23FPO           TGTTGGAGCAGGTTCTTG-------GAATCAAGGTGAGTTTAATTACTTAAAAGATGTTCA
19FTW           AGTCACTGCAACTTCTTATTCAGCGACTGGACAAGGCATTGAGTATACTGCTGGTTCAGG
9VSP            AGTCACTGCAACTTCTTATTCAGCGACTGGACAAGGCATTGAGTATACTGCTGGTTCAGG
TIGR4           AGTCACTGCAACTTCTTATTCAGCGACTGGACAAGGCATTGAGTATACTGCTGGTTCAGG
23FTW           GGTTGGAGCAGGTTCTTG-------GAATCAAGGTGATTTCAATTATTTAAAAGATGTTCA
                 **    ***  *****        ** *  *   *   *  * **        * *

14CSR           AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
670             AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
6BF             AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
6BSP            AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
19AH            AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
23FPO           AAAGAATGACGCTACAAAAGTAGTCAACAAAAAAATCACGATCCCACAAACGGGTGGTAT
19FTW           TAAAGATGACGCTACAAAAGTAGTCAACAAAAAAATCACGATCCCACAAACGGGTGGTAT
9VSP            TAAAGATGACGCTACAAAAGTAGTCAACAAAAAAATCACGATCCCACAAACGGGTGGTAT
TIGR4           TAAAGATGACGCTACAAAAGTAGTCAACAAAAAAATCACTATCCCACAAACGGGTGGTAT
23FTW           GAAGAACGACGCTACAAAAGTAGTCAACAAAAAAATCACGATCCCTCAAACGGGTGGTAT
                 **  * ********************************* ***** **************

14CSR           TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
670             TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
6BF             TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
6BSP            TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
19AH            TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
23FPO           TGGTACAATTATCTTTGCTGTAGCAGGGGCTGTGATTATGGGTATTGCAGTGTACGCATA
19FTW           TGGTACAATTATCTTTGCTGTAGCAGGGGCTGTGATTATGGGTATTGCAGTGTACGCATA
9VSP            TGGTACAATTATCTTTGCTGTAGCAGGGGCTGTGATTATGGGTATTGCAGTGTACGCATA
TIGR4           TGGTACAATTATCTTTGCTGTAGCGGGGGCTGCGATTATGGGTATTGCAGTGTACGCATA
23FTW           TGGTACAATTATCTTTGCTGTAGCGGGGGCTGTGATTATGGGTATTGCAGTGTACGCATA
                ************************ ******* **************************
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Figure 196X

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14CSR           TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
670             TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
6BF             TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
6BSP            TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
19AH            TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
23FPO           TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
19FTW           TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
9VSP            TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
TIGR4           TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
23FTW           TGTTAAAAACAACAAAGATGAGGATCAACTTGCTTAAGTAAGAGAGAAAGGAGCCATTGA
                ************************************************************

14CSR           TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
670             TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
6BF             TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
6BSP            TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
19AH            TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
23FPO           TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
19FTW           TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
9VSP            TGACAATGCAGAAAATGCAGAAAATGCAGAAAATGCAGAAAATGCAGAAAATGCAGAAAA
TIGR4           TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
23FTW           TGACAATGCAGAAAATGCAGAAAATG-----------------------------------
                *************************

14CSR           --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
670             --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
6BF             --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
6BSP            --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
19AH            --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
23FPO           --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
19FTW           --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
9VSP            TGATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
TIGR4           --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
23FTW           --ATTAGTCGTATCTTCTTTGTTATGGCTCTGTGTTTTTCTCTTGTATGGGGTGCACATG
                  ************************************************************

14CSR           CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
670             CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
6BF             CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
6BSP            CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
19AH            CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
23FPO           CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
19FTW           CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
9VSP            CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
TIGR4           CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
23FTW           CAGTCCAAGCGCAAGAAGATCACACGTTGGTCTTGCAATTGGAGAACTATCAGGAGGTGG
                ************************************************************

14CSR           TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
670             TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
6BF             TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
6BSP            TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
19AH            TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
23FPO           TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAGGTATGGAAGTTGGATGATTCGT
19FTW           TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAGGTATGGAAGTTGGATGATTCGT
9VSP            TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAGGTATGGAAGTTGGATGATTCGT
TIGR4           TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAAGTATGGAAGTTGGATGATTCGT
23FTW           TTAGTCAATTGCCATCTCGTGATGGTCATCGGTTGCAGGTATGGAAGTTGGATGATTCGT
                ************************************ ************************
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Figure 196Y

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14CSR           ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
670             ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
6BF             ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
6BSP            ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
19AH            ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
23FPO           ATTCCTATGATAATCGGGTGCAAATTGTGAGAGACTTGCATTCGTGGGATGAGAATAAAC
19FTW           ATTCCTATGATAATCGGGTGCAAATTGTGAGAGACTTGCATTCGTGGGATGAGAATAAAC
9VSP            ATTCCTATGATAATCGGGTGCAAATTGTGAGAGACTTGCATTCGTGGGATGAGAATAAAC
TIGR4           ATTCCTATGATGATCGGGTGCAAATTGTAAGAGACTTGCATTCGTGGGATGAGAATAAAC
23FTW           ATTCCTATGATAATCGGGTGCAAATTGTGAGAGACTTGCATTCGTGGGATGAGAATAAAC
                *********** *************** ******************************

14CSR           TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
670             TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
6BF             TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
6BSP            TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
19AH            TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
23FPO           TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
19FTW           TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
9VSP            TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
TIGR4           TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
23FTW           TTTCTTCTTTCAAAAAGACTTCGTTTGAGATGACCTTCCTTGAGAATCAGATTGAAGTAT
                ************************************************************

14CSR           CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
670             CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
6BF             CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
6BSP            CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
19AH            CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
23FPO           CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
19FTW           CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
9VSP            CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
TIGR4           CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
23FTW           CTCATATTCCAAATGGTCTTTACTATGTTCGCTCTATTATCCAGACGGATGCGGTTTCTT
                ************************************************************

14CSR           ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
670             ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
6BF             ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
6BSP            ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
19AH            ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
23FPO           ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAGACGGTAGAGCCTTTGGTCATTGTAG
19FTW           ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAGACGGTAGAGCCTTTGGTCATTGTAG
9VSP            ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAGACGGTAGAGCCTTTGGTCATTGTAG
TIGR4           ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAAACGGTAGAGCCTTTGGTCATTGTAG
23FTW           ATCCAGCTGAATTTCTTTTTGAAATGACAGATCAGACGGTAGAGCCTTTGGTCATTGTAG
                ********************************** *************************

14CSR           CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
670             CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
6BF             CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
6BSP            CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
19AH            CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
23FPO           CGAAAAAAGCAGATACGGTGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
19FTW           CGAAAAAAGCAGATACGGTGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
9VSP            CGAAAAAAGCAGATACGGTGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
TIGR4           CGAAAAAAACAGATACAATGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
23FTW           CGAAAAAAGCAGATACGGTGACAACAAAGGTGAAGCTGATAAAGGTGGATCAAGACCACA
                ******** *******  ****************************************
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Figure 196X

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14CSR           ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
670             ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
6BF             ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
6BSP            ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
19AH            ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
23FPO           ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
19FTW           ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
9VSP            ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
TIGR4           ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGTTTCTGAAAAAG
23FTW           ATCGCTTGGAGGGTGTCGGCTTTAAATTGGTATCAGTAGCAAGAGATGGTTCTGAAAAAG
                ********************************************** ***********

14CSR           AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
670             AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
6BF             AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
6BSP            AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
19AH            AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
23FPO           AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
19FTW           AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
9VSP            AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
TIGR4           AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
23FTW           AGGTTCCCTTGATTGGAGAATACCGTTACAGTTCTTCTGGTCAAGTAGGGAGAACTCTCT
                ************************************************************

14CSR           ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
670             ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
6BF             ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
6BSP            ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
19AH            ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
23FPO           ATACTGATAAAAATGGAGAGATTGTTGTGACAAATCTTCCTCTTGGGACCTATCGTTTCA
19FTW           ATACTGATAAAAATGGAGAGATTGTTGTGACAAATCTTCCTCTTGGGACCTATCGTTTCA
9VSP            ATACTGATAAAAATGGAGAGATTGTTGTGACAAATCTTCCTCTTGGGACCTATCGTTTCA
TIGR4           ATACTGATAAAAATGGAGAGATTTTTGTGACAAATCTTCCTCTTGGGAACTATCGTTTCA
23FTW           ATACTGATAAAAATGGAGAGATTGTTGTGACAAATCTTCCTCTTGGGACCTATCGTTTCA
                ********************** ************************ ***********

14CSR           AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
670             AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
6BF             AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
6BSP            AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
19AH            AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
23FPO           AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGATGGATACGGATGTCCAGTTGG
19FTW           AGGAGGTGGAGCCACTGGCAGGCTATACTGTTACGACGATGGATACGGATGTCCAGTTGG
9VSP            AGGAGGTGGAGCCACTGGCAGGCTATACTGTTACGACGATGGATACGGATGTCCAGTTGG
TIGR4           AGGAGGTGGAGCCACTGGCAGGCTATGCTGTTACGACGCTGGATACGGATGTCCAGCTGG
23FTW           AGGAGGTGGAGCCACTGGCAGGCTATACTGTTACGACGATGGATACGGATGTCCAGTTGG
                ************************** *********** ***************** ***

14CSR           TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
670             TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
6BF             TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
6BSP            TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
19AH            TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
23FPO           TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
19FTW           TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
9VSP            TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
TIGR4           TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
23FTW           TAGATCATCAGCTGGTGACGATTACGGTTGTCAATCAGAAATTACCACGTGGCAATGTTG
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Figure 196AA

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14CSR       ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
670         ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
6BF         ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
6BSP        ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
19AH        ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
23FPO       ACTTTATGAAGGTGGATGGTAGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
19FTW       ACTTTATGAAGGTGGATGGTAGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
9VSP        ACTTTATGAAGGTGGATGGTAGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
TIGR4       ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
23FTW       ACTTTATGAAGGTGGATGGTCGGACCAATACCTCTCTTCAAGGGGCAATGTTCAAAGTCA
            ******************** ************************************

14CSR       TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
670         TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
6BF         TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
6BSP        TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
19AH        TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
23FPO       TGAAAGAAGAAAACGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTGG
19FTW       TGAAAGAAGAAAACGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTGG
9VSP        TGAAAGAAGAAAACGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTGG
TIGR4       TGAAAGAAGAAAGCGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTAA
23FTW       TGAAAGAAGAAAACGGACACTATACTCCTGTTCTTCAAAATGGTAAGGAAGTAGTTGTGG
            ************ ******************************************

14CSR       CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
670         CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
6BF         CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
6BSP        CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
19AH        CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
23FPO       CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
19FTW       CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
9VSP        CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
TIGR4       CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
23FTW       CATCAGGGAAAGATGGTCGTTTCCGAGTGGAAGGTCTAGAGTATGGGACATACTATTTAT
            ************************************************************

14CSR       GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
670         GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
6BF         GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
6BSP        GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
19AH        GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
23FPO       GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
19FTW       GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
9VSP        GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
TIGR4       GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
23FTW       GGGAGCTCCAAGCTCCAACTGGTTATGTTCAATTAACATCGCCTGTTTCCTTTACAATCG
            ************************************************************

14CSR       GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
670         GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
6BF         GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
6BSP        GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
19AH        GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
23FPO       GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
19FTW       GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
9VSP        GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
TIGR4       GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
23FTW       GGAAAGATACTCGTAAGGAACTGGTAACAGTGGTTAAAAATAACAAGCGACCACGGATTG
            ************************************************************
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Figure 196AB

PCT/US05/27239

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14CSR           ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
670             ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
6BF             ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
6BSP            ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
19AH            ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
23FPO           ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
19FTW           ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
9VSP            ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
TIGR4           ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
23FTW           ATGTGCCAGATACAGGGGAAGAAACCTTGTATATCTTGATGCTTGTTGCCATTTTGTTGT
                ************************************************************

14CSR           TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
670             TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
6BF             TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
6BSP            TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
19AH            TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
23FPO           TTGGTAGTGGCTATTATCTTACGAAAAAAACAAATAACTGATATTCAATGTACATCATTA
19FTW           TTGGTAGTGGCTATTATCTTACGAAAAAAACAAATAACTGATATTCAATGTACATCATTA
9VSP            TTGGTAGTGGCTATTATCTTACGAAAAAAACAAATAACTGATATTCAATGTACATCATTA
TIGR4           TTGGTAGTGGTTATTATCTTACGAAAAAACCAAATAACTGATATTCAATGTACATCATTA
23FTW           TTGGTAGTGGCTATTATCTTACGAAAAAAACAAATAACTGATATTCAATGTACATCATTA
                ********** ***************** ******************************

14CSR           TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
670             TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
6BF             TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
6BSP            TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
19AH            TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
23FPO           TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
19FTW           TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
9VSP            TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
TIGR4           TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
23FTW           TGAAAAAGATAGCAGGCTGAAGGGAAGACCAGAGTACTCTGAGGTGATGTTAATCAGGAA
                ************************************************************

14CSR           TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
670             TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
6BF             TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
6BSP            TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
19AH            TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
23FPO           TCATGGTGATTTGGCATGAATCATAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
19FTW           TCATGGTGATTTGGCATGAATCATAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
9VSP            TCATGGTGATTTGGCATGAATCATAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
TIGR4           TCATGGTGATGTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
23FTW           TCATGGTGATTTGGCATGAATCACAATAACGGATATGAGGCTGGGCAGATTGTGCCAGCC
                ********** ************ ************************************

14CSR           TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
670             TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
6BF             TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
6BSP            TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
19AH            TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
23FPO           TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
19FTW           TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
9VSP            TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
TIGR4           TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
23FTW           TCATTGTGGGTTATTGTTTGTAAAACGATAGGACTGGTCTGGTAATCATTTTAGGAATGG
                ************************************************************
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Figure 196AC

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14CSR           ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
670             ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
6BF             ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
6BSP            ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
19AH            ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
23FPO           ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
19FTW           ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
9VSP            ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
TIGR4           ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
23FTW           ACAGGACTGGGATTCTGATTTAAAATGGATGGTGAATCAGAAAGAAATGAGATTTTCTCG
                ************************************************************

14CSR           TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
670             TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
6BF             TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
6BSP            TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
19AH            TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
23FPO           TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGTT
19FTW           TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGTT
9VSP            TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGTT
TIGR4           TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
23FTW           TTTCTCTTAGCAGATAGGATTGTCTGTTAGGAAAAGCGATAAAATGATGAGTTTGAAGAT
                ************************************************************ *

14CSR           AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
670             AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
6BF             AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
6BSP            AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
19AH            AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
23FPO           AAAGGAATGCTGATAAAAAATGGCAAAAACAAAAAAGCAAAAACGAAACAATCTCCTATT
19FTW           AAAGGAATGCTGATAAAAAATGGCAAAAACAAAAAAGCAAAAACGAAACAATCTCCTATT
9VSP            AAAGGAATGCTGATAAAAAATGGCAAAAACAAAAAAGCAAAAACGAAACAATCTCCTATT
TIGR4           AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
23FTW           AAAGGGATGCTGATAAAAA-TGGTAAAAACAAAAAAGCAAAAACGAAATAATCTCCTATT
                ***** ************* *** ************************ ***********

14CSR           AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
670             AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
6BF             AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
6BSP            AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
19AH            AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
23FPO           AGGAGTGGTATTTTTCATTGGAATAGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
19FTW           AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
9VSP            AGGAGTGGTATTTTTCATTGGAATAGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
TIGR4           AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
23FTW           AGGAGTGGTATTTTTCATTGGAATGGCGGTAATGGCGTATCCGCTGGTGTCTCGCTTGTA
                ************************ **********************************

14CSR           TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
670             TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
6BF             TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
6BSP            TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
19AH            TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
23FPO           TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
19FTW           TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
9VSP            TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
TIGR4           TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
23FTW           TTATCGAGTGGAATCAAATCAACAAATTGCTGACTTTGATAAGGAAAAAGCAACGTTGGA
                ************************************************************
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Figure 196AD

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14CSR           TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
670             TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
6BF             TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
6BSP            TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
19AH            TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
23FPO           TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
19FTW           TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
9VSP            TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
TIGR4           TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
23FTW           TGAGGCTGACATTGATGAACGAATGAAATTGGCACAAGCCTTCAATGACTCTTTGAATAA
                ************************************************************

14CSR           TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
670             TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
6BF             TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
6BSP            TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
19AH            TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
23FPO           TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
19FTW           TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
9VSP            TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
TIGR4           TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
23FTW           TGTAGTGAGTGGCGATCCTTGGTCGGAAGAAATGAAGAAAAAAGGGCGAGCAGAGTATGC
                ************************************************************

14CSR           ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
670             ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
6BF             ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
6BSP            ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
19AH            ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
23FPO           ACGCATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCTGCTATTGATGTAGA
19FTW           ACGCATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCTGCTATTGATGTAGA
9VSP            ACGCATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCTGCTATTGATGTAGA
TIGR4           ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
23FTW           ACGTATGTTAGAAATCCATGAGCGGATGGGGCATGTGGAAATCCCCGTTATTGACGTGGA
                *** ************************************** * ****** ** **

14CSR           TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
670             TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
6BF             TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
6BSP            TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
19AH            TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
23FPO           TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGCGCTGGACATCTAGA
19FTW           TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGCGCTGGACATCTAGA
9VSP            TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGCGCTGGACATCTAGA
TIGR4           TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCATCTAGA
23FTW           TTTGCCGGTTTATGCTGGTACTGCTGAAGAGGTATTGCAGCAAGGGGCTGGGCAGCTAGA
                ******************************************* ***** ** *****

14CSR           GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
670             GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
6BF             GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
6BSP            GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
19AH            GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
23FPO           GGGAACTTCTCTACCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
19FTW           GGGAACTTCTCTACCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
9VSP            GGGAACTTCTCTACCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
TIGR4           GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
23FTW           GGGAACTTCTCTGCCGATCGGAGGCAATTCGACCCATGCGGTGATTACGGCACATACAGG
                ************ ************************************************
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Figure 196AE

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14CSR           TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
670             TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
6BF             TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
6BSP            TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
19AH            TTTGCCAACAGCGAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
23FPO           TTTGCCAACGGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
19FTW           TTTGCCAACGGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
9VSP            TTTGCCAACGGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
TIGR4           TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
23FTW           TTTGCCAACAGCTAAGATGTTTACGGATTTGACCAAACTTAAAGTTGGGGATAAGTTTTA
                ********* ** **********************************************

14CSR           TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
670             TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
6BF             TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
6BSP            TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
19AH            TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
23FPO           TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
19FTW           TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
9VSP            TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
TIGR4           TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
23FTW           TGTGCACAATATCAAGGAAGTGATGGCCTATCAAGTGGATCAAGTAAAGGTGATTGAGCC
                ************************************************************

14CSR           GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
670             GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
6BF             GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
6BSP            GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
19AH            GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
23FPO           GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACCTG
19FTW           GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACCTG
9VSP            GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACCTG
TIGR4           GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
23FTW           GACGAACTTTGATGATTTATTGATTGTACCAGGTCATGATTATGTGACCTTGCTGACTTG
                ************************************************************ **

14CSR           TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
670             TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
6BF             TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
6BSP            TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
19AH            TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
23FPO           TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
19FTW           TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
9VSP            TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
TIGR4           TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
23FTW           TACGCCATACATGATCAATACCCATCGTCTATTGGTTCGGGGGCATCGGATACCGTACGT
                ************************************************************

14CSR           AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
670             AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
6BF             AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
6BSP            AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
19AH            AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
23FPO           AGCAGAGGTTGAGGAAGAATTTATTGCGGCAAACAAACTCAGTCATCTCTATCGCTACCT
19FTW           AGCAGAGGTTGAGGAAGAATTTATTGCGGCAAACAAACTCAGTCATCTCTATCGCTACCT
9VSP            AGCAGAGGTTGAGGAAGAATTTATTGCGGCAAACAAACTCAGTCATCTCTATCGCTACCT
TIGR4           AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
23FTW           AGCAGAGGTTGAGGAAGAATTTATTGCAGCAAACAAACTCAGTCATCTCTATCGCTACCT
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Figure 196AF

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14CSR       GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
670         GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
6BF         GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
6BSP        GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
19AH        GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
23FPO       GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
19FTW       GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
9VSP        GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
TIGR4       GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
23FTW       GTTTTATGTGGCAGTTGGTTTGATTGTGATTCTTTTATGGATTATTCGACGCTTGCGCAA
            ************************************************************

14CSR       GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
670         GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
6BF         GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
6BSP        GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
19AH        GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
23FPO       GAAGAAACGGCAATCAGAAAGAGCTTTGAAAGCATTGAAGGAAGCTACTAAGGAAGTGAA
19FTW       GAAGAAACGGCAATCAGAAAGAGCTTTGAAAGCATTGAAGGAAGCTACTAAGGAAGTGAA
9VSP        GAAGAAACGGCAATCAGAAAGAGCTTTGAAAGCATTGAAGGAAGCTACTAAGGAAGTGAA
TIGR4       GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
23FTW       GAAGAAAAAACAACCGGAAAAGGCTTTGAAGGCGCTGAAAGCAGCAAGGAAGGAAGTGAA
            *******   *** * ****  ******** **  **** * *** *  ************

14CSR       GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
670         GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
6BF         GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
6BSP        GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
19AH        GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
23FPO       GGTAGAGGATGAGTAAGAGTAGATATTCACGGAAAAAAGAGCGTGAAAAAGAAGAAAAATC
19FTW       GGTAGAGGATGAGTAAGAGTAGATATTCACGGAAAAAAGAGCGTGAAAAAGAAGAAAAATC
9VSP        GGTAGAGGATGAGTAAGAGTAGATATTCACGGAAAAAAGAGCGTGAAAAAGAAGAAAAATC
TIGR4       GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
23FTW       GGTGGAGGATGGACAACAGTAGACGTTCACGAAAAAAAAGGCACAAAAAAGAAGAAACATC
            *** *******   ** ******  ****** *****  **   ************ ***

14CSR       CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
670         CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
6BF         CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
6BSP        CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
19AH        CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
23FPO       CGTTCATTCTTCTTCTGATTTTTTTGGTGGGGCTTGCCGTTGCGATGTATCCCTTGGTGT
19FTW       CGTTCATTCTTCTTCTGATTTTTTTGGTGGGGCTTGCCGTTGCGATGTATCCCTTGGTGT
9VSP        CGTTCATTCTTCTTCTGATTTTTTTGGTGGGGCTTGCCGTTGCGATGTATCCCTTGGTGT
TIGR4       CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
23FTW       CGCTGATCCTTCTTCTGATTTTCTTAGTAGGATTCGCCGTTGCGATATATCCATTGGTGT
            ** * ** ************** ** ** **  * ***********  ***** *******

14CSR       CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
670         CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
6BF         CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
6BSP        CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
19AH        CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
23FPO       CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
19FTW       CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
9VSP        CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
TIGR4       CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
23FTW       CTCGTTATTATTATCGTATTGAGTCAAACGAGGTTATTAAAGAGTTTGATGAGACGGTTT
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Figure 196AG

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14CSR       CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
670         CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
6BF         CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
6BSP        CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
19AH        CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
23FPO       CCCAGATGGATAAGGCGGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
19FTW       CCCAGATGGATAAGGCGGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
9VSP        CCCAGATGGATAAGGCGGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
TIGR4       CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
23FTW       CCCAGATGGATAAGGCAGAACTTGAGGAGCGTTGGCGCTTGGCTCAAGCCTTCAATGCGA
            ********************************************************************

14CSR       CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
670         CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
6BF         CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
6BSP        CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
19AH        CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
23FPO       CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
19FTW       CCTTGAAACCATCTGAAATCCTCGATCCTTTTACAGATCAGGAAAAGAAACAGGGAGTTT
9VSP        CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
TIGR4       CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
23FTW       CCTTGAAACCATCTGAAATTCTTGATCCTTTTACAGAGCAAGAGAAAAAGAAAGGCGTCT
            ******************** ** ************** ** ** ** **  * ** ** * *

14CSR       CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
670         CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
6BF         CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
6BSP        CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
19AH        CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
23FPO       CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
19FTW       CAGAATATGCTAACATGCTAAAAGTTCATGAGCGTATCGGATATGTAGAAATTCCTGCGA
9VSP        CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
TIGR4       CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
23FTW       CAGAATATGCCAATATGCTAAAGGTCCATGAGCGGATTGGCTATGTGGAAATTCCTGCGA
            ********** ** ******** ** ******** ** ** ***** **************

14CSR       TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
670         TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
6BF         TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
6BSP        TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
19AH        TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
23FPO       TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
19FTW       TTGAACAGGAAATCCCCATGTATGTTGGCACAAGTGAAGACATTCTTCAGAAAGGGGCAG
9VSP        TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
TIGR4       TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGACATTCTTCAGAAAGGGGCAG
23FTW       TTGATCAGGAAATTCCGATGTATGTCGGAACGAGTGAGGAAATTCTTCAGAAGGGCGCAG
            **** ******** ** ******** ** ** ***** ** *********** ** ****

14CSR       GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
670         GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
6BF         GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
6BSP        GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
19AH        GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
23FPO       GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
19FTW       GGCTGTTAGAAGGGGCTTCGCTGCCTGTTGGAGGTGAAAATACCCATACAGTGATCACTG
9VSP        GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTCACTG
TIGR4       GGCTGTTAGAAGGGGCTTCGCTGCCTGTTGGAGGTGAAAATACCCATACAGTGATCACTG
23FTW       GATTGCTAGAGGGAGCTTCGTTACCGGTTGGTGGTGAAAATACCCACACAGTTGTTACTG
            *  ** **** ** ****** * ** ***** ************** *****  * ****
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Figure 196AH

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14CSR       CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
670         CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
6BF         CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
6BSP        CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
19AH        CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
23FPO       CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
19FTW       CTCACAGAGGATTGCCAACGGCAGAATTGTTCAGTCAATTGGATAAGATGAAGAAAGGGG
9VSP        CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
TIGR4       CTCACAGAGGATTGCCAACGGCAGAATTGTTCAGTCAATTGGATAAGATGAAAAAAGGGG
23FTW       CTCATAGAGGATTACCGACGGCAGAACTGTTTAGTCAATTGGATAAGATGAAAAAAGGGG
            **** ******** ** ********* **** ******************** *******

14CSR       ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
670         ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
6BF         ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
6BSP        ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
19AH        ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
23FPO       ATATCTTTTATCTTCACGTTTTAGATCAGGTGTTGGCCTACCAAGTGGATCAGATAGTGA
19FTW       ATATCTTTTATCTTCACGTTTTAGACCAGGTTTTGGCCTATCAAGTGGATCAGATAGTGA
9VSP        ATATCTTTTATCTTCACGTTTTAGATCAGGTGTTGGCCTACCAAGTGGATCAGATAGTGA
TIGR4       ATATCTTTTATCTTCACGTTTTAGATCAGGTGTTGGCCTACCAAGTGGATCAGATAGTGA
23FTW       ATGTCTTTTATCTTCACGTTTTAGACCAGGTGTTGGCCTACCAAGTGGATCAGATTTTGA
            ** ********************** ***** ******** **************  ***

14CSR       CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
670         CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
6BF         CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
6BSP        CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
19AH        CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
23FPO       CGGTGGAGCCGAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
19FTW       CGGTGGAGCCGAATGATTTTGAGCCTGTTCTGATTCAACATGGACAAGATTATGCGACTT
9VSP        CGGTGGAGCCGAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
TIGR4       CGGTGGAGCCGAATGACTTTGAGCCTGTCTTGATTCAACATGGGGAAGATTATGCGACCT
23FTW       CGGTTGAGCCAAATGACTTTGAGCCTGTCTTGATTCAACATGGGAAAGATTATGCGACCT
            **** ***** ***** ***********  *************  ************* *

14CSR       TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
670         TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
6BF         TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
6BSP        TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
19AH        TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
23FPO       TGTTGACTTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
19FTW       TACTGACTTGTACGCCATACATGATTAACAGCCACCGTTTGTTGGTACGTGGGAAACGGA
9VSP        TGTTGACTTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
TIGR4       TGTTGACTTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
23FTW       TGTTGACCTGTACACCGTATATGATTAACAGTCATCGTCTGTTGGTACGTGGGAAGCGGA
            *  **** ***** ** ** ********** ** *** *************** ****

14CSR       TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
670         TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
6BF         TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
6BSP        TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
19AH        TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
23FPO       TTCCGTATACGGCACCAATTGCAGAGCGGAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
19FTW       TTCCATATACAGCGCCGATTGCTGAGCGGAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
9VSP        TTCCGTATACGGCACCAATTGCAGAGCGGAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
TIGR4       TTCCGTATACGGCACCAATTGCAGAGCGGAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
23FTW       TTCCGTATACGGCACCAATTGCAGAGCGAAATCGAGCGGTGAGAGAGCGTGGGCAATTCT
            **** ***** ** ** ***** ***** ********************************
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Figure 196I

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14CSR           GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
670             GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
6BF             GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
6BSP            GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
19AH            GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
23FPO           GGTTGTGGTTATTACTAGGAGCGATGGCGGTCATCCTTCTCTTGCTGTATCGCGTGTATC
19FTW           GGTTGTGGTTATTACTAGGAGCGATGGCGGTCATCCTTCTCTTGCTGTATCGCGTGTATC
9VSP            GGTTGTGGTTATTACTAGGAGCGATGGCGGTCATCCTTCTCTTGCTGTATCGCGTGTATC
TIGR4           GGTTGTGGTTATTACTAGGAGCGATGGCGGTCATCCTTCTCTTGCTGTATCGCGTGTATC
23FTW           GGTTGTGGTTATTGCTAGCGGCGTTGGTTATGATTCTGGTATTGAGTTACGGGGTGTATC
                ************* **** *** ***  * ** **  * ***  **  * *******

14CSR           GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
670             GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
6BF             GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
6BSP            GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
19AH            GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
23FPO           GTAATCGACGGATTGTCAAAGGACTAGAAAAGCAATTGGAGGGGCGTCATGTCAAGGACT
19FTW           GTAATCGACGGATTGTCAAAGGACTAGAAAAGCAATTGGAGGGGCGTCATGTCAAGGACT
9VSP            GTAATCGACGGATTGTCAAAGGACTAGAAAAGCAATTGGAGGGGCGTCATGTCAAGGACT
TIGR4           GTAATCGACGGATTGTCAAAGGACTAGAAAAGCAATTGGAGGGGCGTCATGTCAAGGACT
23FTW           GTCATCGTCGCATTGTCAAAGGGCTAGAAAAACAATTGGAGGAGCATCATGTCAAAGGCT
                ** **** ** *********** ******** ********** ** ********* * **

14CSR           AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
670             AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
6BF             AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
6BSP            AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
19AH            AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
23FPO           AAACTACGAGCCTTATTGGGATACTTGTTGATGTTGGTAGCCTGTTTGATTCCTATTTAT
19FTW           AAACTACGAGCCTTATTGGGATACTTGTTGATGTTGGTAGCCTGTTTGATTCCTATTTAT
9VSP            AAACTACGAGCCTTATTGGGATACTTGTTGATGTTGGTAGCCTGTTTGATTCCTATTTAT
TIGR4           AAACTACGAGCCTTATTGGGATACTTGTTGATGTTGGTAGCCTGTTTGATTCCTATTTAT
23FTW           AAGCTACAGAAATTACTAGGGTATTTGCTGATGCTGGTAGCATTGGTGATTCCTGTTTAT
                ** ****     *** * ** ** *** ***** ******* *   ******** *****

14CSR           TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
670             TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
6BF             TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
6BSP            TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
19AH            TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
23FPO           TGTTTTGGACAGATGGTGTTGCAGTCTCTTGGACAGGTGAAAGGTCATGCTACATTTGTG
19FTW           TGTTTTGGACAGATGGTGTTGCAGTCTCTTGGACAGGTGAAAGGTCATGCTACATTTGTG
9VSP            TGTTTTGGACAGATGGTGTTGCAGTCTCTTGGACAGGTGAAAGGTCATGCTACATTTGTG
TIGR4           TGTTTTGGACAGATGGTGTTGCAGTCTCTTGGACAGGTGAAAGGTCATGCTACATTTGTG
23FTW           TGTTTTGGGCAGATGGTGTTACAGTCTTTAGGACAAGTAAAAGGTCATGAGATATTTTCA
                ******** *********** ****** * ***** ** **********  * ****

14CSR           GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
670             GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
6BF             GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
6BSP            GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
19AH            GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
23FPO           AAATCCATGACAACTGAAATGTACCAAGAACAACAGAACCATTCTCTCGCCTACAATCAA
19FTW           AAATCCATGACAACTGAAATGTACCAAGAACAACAGAACCATTCTCTCGCCTACAATCAA
9VSP            AAATCCATGACAACTGAAATGTACCAAGAACAACAGAACCATTCTCTCGCCTACAATCAA
TIGR4           AAATCCATGACAACTGAAATGTACCAAGAACAACAGAACCATTCTCTCGCCTACAATCAA
23FTW           GAATCTGTGACGGCCGACAGTTACCAAGAGCAATTGCAACGGTCGCTTGATTACAATCAA
                 ****  ****  * ** *  ******** ***  * * *  ** ** *  *********
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Figure 196AJ

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14CSR           CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
670             CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
6BF             CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
6BSP            CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
19AH            CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
23FPO           CGCTTGGCTTCGCAAAATCGCATTGTAGATCCTTTTTTGGCGGAGGGATATGAGGTCAAT
19FTW           CGCTTGGCTTCGCAAAATCGCATTGTAGATCCTTTTTTGGCGGAGGGATATGAGGTCAAT
9VSP            CGCTTGGCTTCGCAAAATCGCATTGTAGATCCTTTTTTGGCGGAGGGATATGAGGTCAAT
TIGR4           CGCTTGGCTTCGCAAAATCGCATTGTAGATCCTTTTTTGGCGGAGGGATATGAGGTCAAT
23FTW           CGCTTGGATTCGCAAAATCGTATTGTAGATCCTTTTTTGGCGGAAGGGTATGAGGTAAAT
                ******* ************ ********************** ** ******** ***

14CSR           TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
670             TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
6BF             TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
6BSP            TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
19AH            TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
23FPO           TACCAAGTGTCTGACGACCCTGATGCAGTCTATGGTTACTTGTCTATTCCAAGTTTGGAA
19FTW           TACCAAGTGTCTGACGACCCTGATGCAGTCTATGGTTACTTGTCTATTCCAAGTTTGGAA
9VSP            TACCAAGTGTCTGACGACCCTGATGCAGTCTATGGTTACTTGTCTATTCCAAGTTTGGAA
TIGR4           TACCAAGTGTCTGACGACCCTGATGCAGTCTATGGTTACTTGTCTATTCCAAGTTTGGAA
23FTW           TACCAAGTGTCTGACGATCCTGATGCAGTCTACGGCTATTTGTCGATTCCGAGTTTGGAA
                ***************** ************** ** ** ***** ***** *********

14CSR           ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
670             ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
6BF             ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
6BSP            ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
19AH            ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
23FPO           ATCATGGAGCCGGTTTATTTGGGAGCAGATTATCATCATTTAGGGATGGGCTTGGCTCAT
19FTW           ATCATGGAGCCGGTTTATTTGGGAGCAGATTATCATCATTTAGGGATGGGCTTGGCTCAT
9VSP            ATCATGGAGCCGGTTTATTTGGGAGCAGATTATCATCATTTAGGGATGGGCTTGGCTCAT
TIGR4           ATCATGGAGCCGGTTTATTTGGGAGCAGATTATCATCATTTAGGGATGGGCTTGGCTCAT
23FTW           ATCATGGAGCCAGTTTATCTAGGAGCGGATTACCATCATTTAGCAATGGGGTTGGCCCAT
                *********** ****** * ***** ***** **********  ***** ***** ***

14CSR           GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
670             GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
6BF             GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
6BSP            GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
19AH            GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
23FPO           GTGGATGGTACACCGCTGCCTCTGGATGGTACAGGGATTCGCTCAGTGATTGCTGGGCAC
19FTW           GTGGATGGTACACCGCTGCCTCTGGATGGTACAGGGATTCGCTCAGTGATTGCTGGGCAC
9VSP            GTGGATGGTACACCGCTGCCTCTGGATGGTACAGGGATTCGCTCAGTGATTGCTGGGCAC
TIGR4           GTGGATGGTACACCGCTGCCTCTGGATGGTACAGGGATTCGCTCAGTGATTGCTGGGCAC
23FTW           GTGGATGGGACGCCTCTTCCTGTTGAGGGAAAAGGGATTCGTTCAGTGATTGCTGGGCAC
                ******** ** ** ** *** * ** ** * ********* ******************

14CSR           CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
670             CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
6BF             CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
6BSP            CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
19AH            CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
23FPO           CGTGCAGAGCCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
19FTW           CGTGCAGAGCCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
9VSP            CGTGCAGAGCCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
TIGR4           CGTGCAGAGCCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
23FTW           CGTGCAGAACCAAGCCATGTCTTTTTCCGCCATTTGGATCAGCTAAAAGTTGGAGATGCT
                ******** **************************************************
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Figure 196AK

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14CSR           CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
670             CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
6BF             CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
6BSP            CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
19AH            CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
23FPO           CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
19FTW           CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
9VSP            CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
TIGR4           CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
23FTW           CTTTATTATGATAATGGCCAGGAAATTGTAGAATATCAGATGATGGACACAGAGATTATT
                ************************************************************

14CSR           TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
670             TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
6BF             TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
6BSP            TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
19AH            TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
23FPO           TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
19FTW           TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
9VSP            TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
TIGR4           TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
23FTW           TTACCGTCGGAATGGGAAAAATTAGAATCGGTTAGCTCTAAAAATATCATGACCTTGATA
                ************************************************************

14CSR           ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
670             ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
6BF             ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
6BSP            ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
19AH            ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
23FPO           ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
19FTW           ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
9VSP            ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
TIGR4           ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
23FTW           ACCTGCGATCCGATTCCTACCTTTAATAAACGCTTATTAGTGAATTTTGAACGAGTCGCT
                ************************************************************

14CSR           GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
670             GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
6BF             GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
6BSP            GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
19AH            GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
23FPO           GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
19FTW           GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
9VSP            GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
TIGR4           GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
23FTW           GTTTATCAAAAATCAGATCCACAAACAGCTGCAGTTGCGAGGGTTGCTTTTACGAAAGAA
                ************************************************************

14CSR           GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
670             GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
6BF             GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
6BSP            GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
19AH            GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
23FPO           GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
19FTW           GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
9VSP            GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
TIGR4           GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
23FTW           GGACAATCTGTATCGCGTGTTGCAACCTCTCAATGGTTGTACCGTGGGCTAGTGGTACTG
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Figure 196AL

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14CSR       GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
670         GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
6BF         GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
6BSP        GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
19AH        GCATTTATGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
23FPO       GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
19FTW       GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
9VSP        GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
TIGR4       GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
23FTW       GCATTTCTGGGAATCCTGTTTGTTTTGTGGAAGCTAGCACGTTTACTACGAGGGAAATAA
            ****** **************************************************

14CSR       AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAGGGG
670         AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAGTGG
6BF         AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAG---
6BSP        AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAG---
19AH        AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAG---
23FPO       AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGT-----
19FTW       AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAGT--
9VSP        AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAG---
TIGR4       AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTAGTGG
23FTW       AAAGAAATGAAAGGAAAGCTAAGGCTGTTCCTTTTTCCGGCTCTTTGTCAACTGTA----
            ************************************************************
```
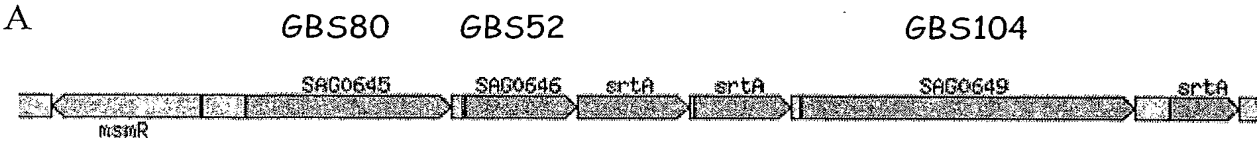

Figure 196AM

Figure 197

A



B

Intergenic region between AraC R and GBS 80

AraC..CAT

TTGATAGA**CCGCCTTC**ATTATCATTTCTAGAATTTTTCTTTAGGTTTGTA
AAGACTACAAAATAAAATGATGAAAACAACTATCTTGTGGATACACTAAA
AAGACACGCTAATTAGCAAACTCTCTCTTCATCATCTCTCACCATTATTA
TACTAC***TATTTATAT***GACAAATAAAGGTGATTT***TGTTAA***AATATAACTTT
GAAAATCCACATATATTTTTAATCTTCCGTCTG**AAAAAA**TAAATAAAAAT
AGTAAAAATAAACACGAATTTAAAATAAGCAAATTTTTTAAGAAAATCTG
TGCTAAACTTTAATAGTTTTGTGCTTAATAATAATCAGCACTTACAAAGA
ACAAAGGGAAAAGCGA**GGAGA**GAACTTTTA **ATG.. GBS80**

C

187	4A		5A		5A
233	6A		6A		7A
Strain	FACS a -80	Strain	FACS a -80	Strain	FACS a -80
1998	95	5364	**454**	2129	57
2110	0	JMV071	**556**	2274	113
2603	62	JM91003	**587**	5401	170
3050	43	CJB111	**365**	5408	0
5376	165			5518	31
M781	65			CJB110	71
COH1	**305** (G->T 179)			J7357B	91
18rs 21	0 (STOP, no LPXTG)			COH31	0

AI-1											
			aa	M1	M3	M5	M18	M49	M6	M12	
M6											
50913503	M6_Spy0157	LPXTG	628	gas15 30%in593aa	M3-0098 46%in256aa M3-0104 28%in563aa		M18-0132 24%in701aa			M12-4134 74%in703aa	Fibronectin-binding protein (protein F)
50913505	M6_Spy0159	LPXSG	1037		M3-0104 25%in339aa					M12-4141 37%in98aa	Collagen adhesion protein
50913506	M6_Spy0160	LPXTG	557								Fimbrial structural subunit

Figure 198

AI-2											
			aa	M1	M3	M5	M18	M49	M6	M12	
M1											
gas15	gas15	VVXTG	762		M3-0098 50%in738aa	M5-orf78 60%in462aa	M18-0126 54%in469aa			M12-4135 54%in747aa	Cpa
13621428	SPy0128 gas16	EVXTG	340		M3-0100 40%in354aa	M5-orf80 41%in358aa	M18-0128 38%in357aa			M12-4137 40%in354aa	hypothetical protein (fimbrial)
13621430	SPy0130 gas18	LPXTG	215		M3-0102 32%200aa	M5-orf82 31%in213aa	M18-0130 32%in213aa			M12-4139 31%in206aa	hypothetical protein

Figure 199

AI-3											
			aa	M1	M3	M5	M18	M49	M6	M12	
M3											
21909634	SpyM3_0098	VPXTG	744	gas15 51%in739aa		M5-orf78 58%in484aa	M18-0126 74%in482aa			M12-4135 55%in751aa	putative collagen binding protein (Cpb)
21909636	SpyM3_0100	QVXTG	344	gas16 40%in354aa		M5-orf80 64%in349aa	M18-0128 67%in345aa			M12-4137 61%in344aa	conserved hypothetic al protein (fimbrial)
21909638	SpyM3_0102	LPXAG	195	gas18 32%in200aa		M5-orf82 98%in183aa	M18-0130 97%in183aa			M12-4139 99%in183aa	hypothetic al protein
21909640	SpyM3_0104	LPXTG	696			M5-orf84 88%in656aa	M18-0132 88%in656aa			M12-4141 59%in612aa	protein F2 like fibronectin -binding

Figure 200A

M18											
19745301	spyM18_0126	VPXTG	524	gas15 54%in469aa	M3-0098 74%in482	M5-orf78 61%in528aa				M12-4135 59%in489aa	putative collagen binding protein (Cpb)
19745303	spyM18_0128	QVXTG	344	gas16 38%in357aa	M3-0100 67%in345aa	M5-orf80 60%in349aa				M12-4137 62%in344aa	conserved hypothetic al protein (fimbrial)
19745305	spyM18_0130	LPXAG	195	gas18 32%in213aa	M3-0102 97%in189aa	M5-orf82 99%in195aa				M12-4139 97%in189aa	hypothetic al protein
19745307	spyM18_0132	LPXTG	696		M3-0104 88%in656aa	M5-orf84 100%in696aa				M12-4141 50%in701aa	protein F2 like fibronectin -binding

Figure 200B

M5											
orf78		VPXTG	523	gas15 60%in462aa	M3-0098 58%in481aa		M18-0126 61%in528aa			M12-4135 80%in484aa	putative collagen binding protein (Cpb)
orf80		QVXTG	352	gas16 39%in356aa	M3-0100 64%in349aa		M18-0128 60%in349aa			M12-4137 65%in348aa	conserved hypothetic al protein (fimbrial)
orf82		LPXAG	224	gas18 31%in213aa	M3-0102 98%in183aa		M18-0130 99%in195aa			M12-4139 98%in189aa	hypothetic al protein
orf84		LPXTG	696		M3-104 88%in656aa		M18-0132 100%in696aa			M12-4141 50%in701aa	protein F2 like fibronectin -binding

Figure 200C

M49											
56808848		VPXTG	744	gas15 55%in738aa	M3-0098 72%in743aa	M5-orf78 78%in483	M18-0126 61% in484			M12-4135 73%in752aa	putative collagen binding protein (Cpb)
56808846		QVXTG	344	gas16 36%in355aa	M3-0100 66%in345aa	M5-orf80 61%in349aa	M18-0128 90%in344aa			M12-4137 62%in344aa	conserved hypothetic al protein (fimbrial)
56808844		LPXAG	189	gas18 31%in206aa	M3-102 98%in189aa	M5-orf82 98%in189aa	M18-0130 98%in189aa			M12-4139 98%in189aa	hypothetic al protein
56808842		LPXTG	1160		M3-104 59%in612aa	M5-orf84 50%in701aa	M18-0132 50%in701aa		M6-0157 32%in296aa	M12-4141 91%in1164aa	protein F2 like fibronectin -binding

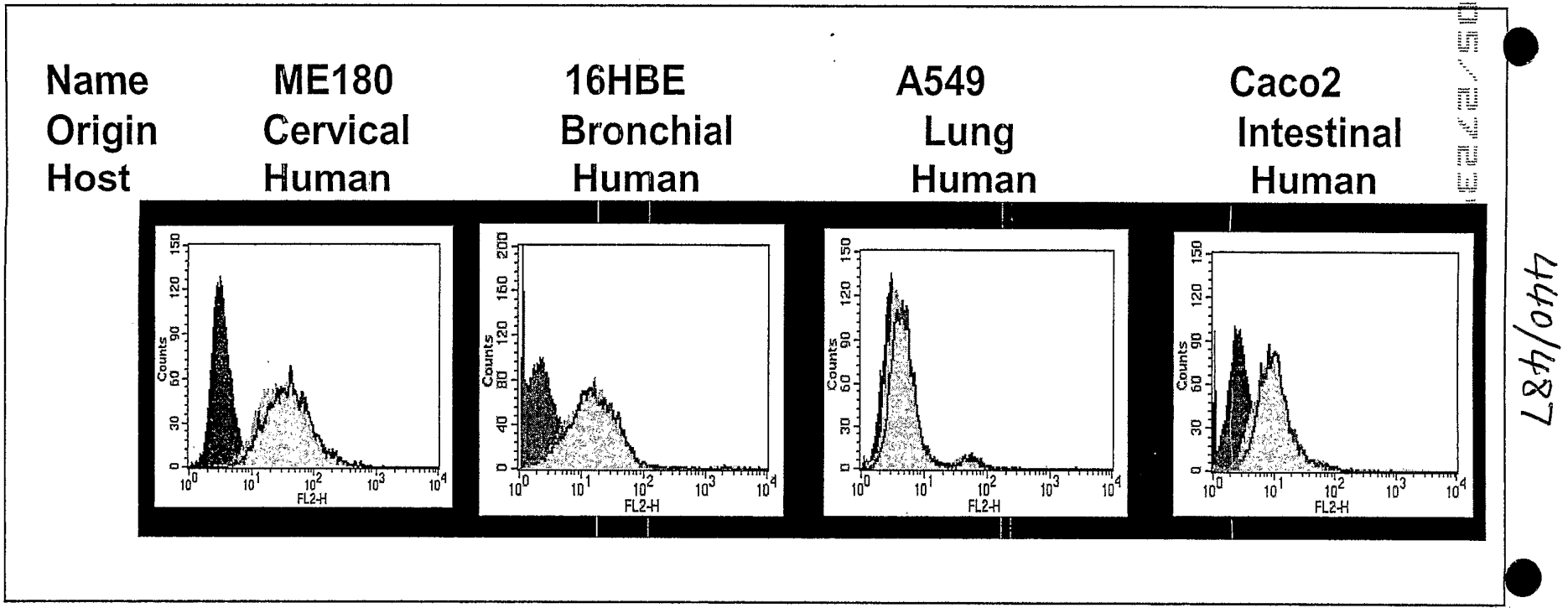
Figure 200D

AI-4											
			aa	M1	M3	M5	M18	M49	M6	M12	
M12											
19224134		LPXTG	698	gas15 44%in297aa	M3-0098 49%in254aa				M6-0157 74%in703aa		protein F
19224135		VPXTG	756	gas15 54%in747aa	M3-0098 55%in751aa	orf78 80%in484aa	M18-0126 59%in483aa		M6-0157 51%in275aa		Cpa
19224137		QVXTG	342	gas16 40%in354aa	M3-0100 61%in344aa	orf80 65%in384aa	M18-0128 62%in344aa				EftLSLA (fimbrial)
19224139		LPXAG	189	gas18 31%in206aa	M3-0102 99%in183aa	orf82 98%in189aa	M18-130 97%in189aa				Orf2
19224141		LPXTG	1161		M3-0104 59%in612aa	orf84 50%in701aa	M18-0132 50%in701aa				protein F2

Figure 201

Figure 202

3S80 recombinant protein does not bind to epithelial c



Epithelial cells were incubated in the presence or absence of GBS80 protein and then a mouse a-GBS80 polyclonal antibody added. The cell were then stained with FITC-conjugated a-mouse IgG antibody. The violet area indicates cells treated with FITC-conjugated antibody alone. GBS80 binding, expressed as Dmean channel values, was measured by FACScan cytometer as difference in fluorescence intensity between cell incubated with or without GBS80. The same protocol was used for GBS104 protein binding to epithelial cells

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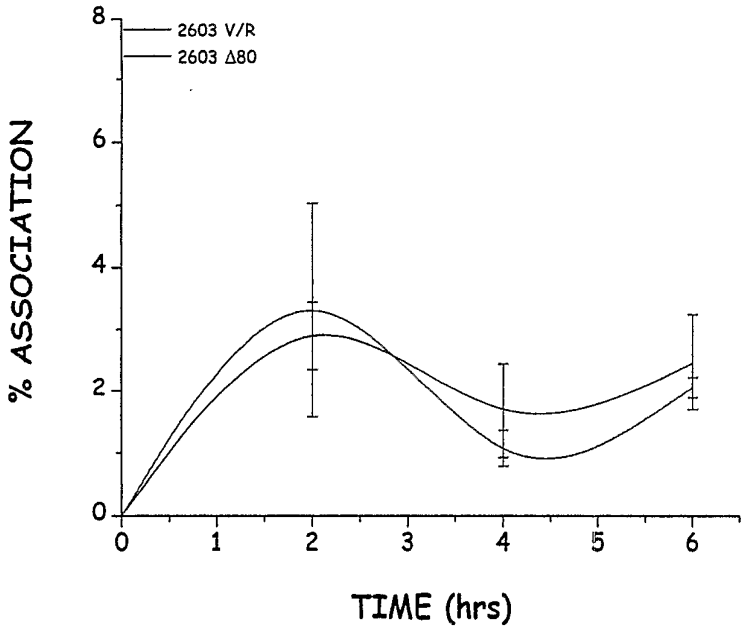
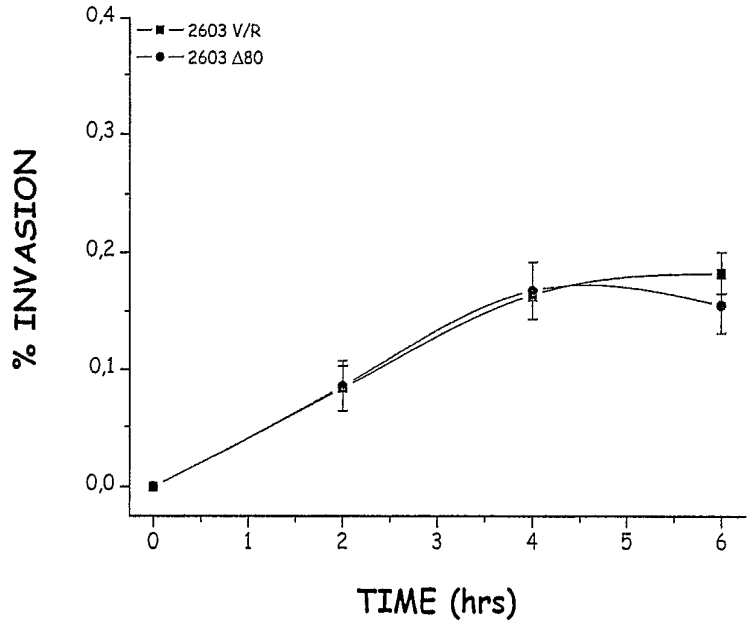
Figure 203

Deletion of GBS80 protein does not affect the ability of GBS to adhere and invade ME180





ME180 cervical carcinoma epithelial cells were infected with GBS 2603 wild type or 2603 D80 isogenic mutant. After 2h infection, non-adherent bacteria were washed off and infection prolonged for further 2h and 4h. In invasion experiments, after each time point followed a 2h antibiotic treatment. Cells were then lysed with 1% saponin and lysates plated on TSA plates.

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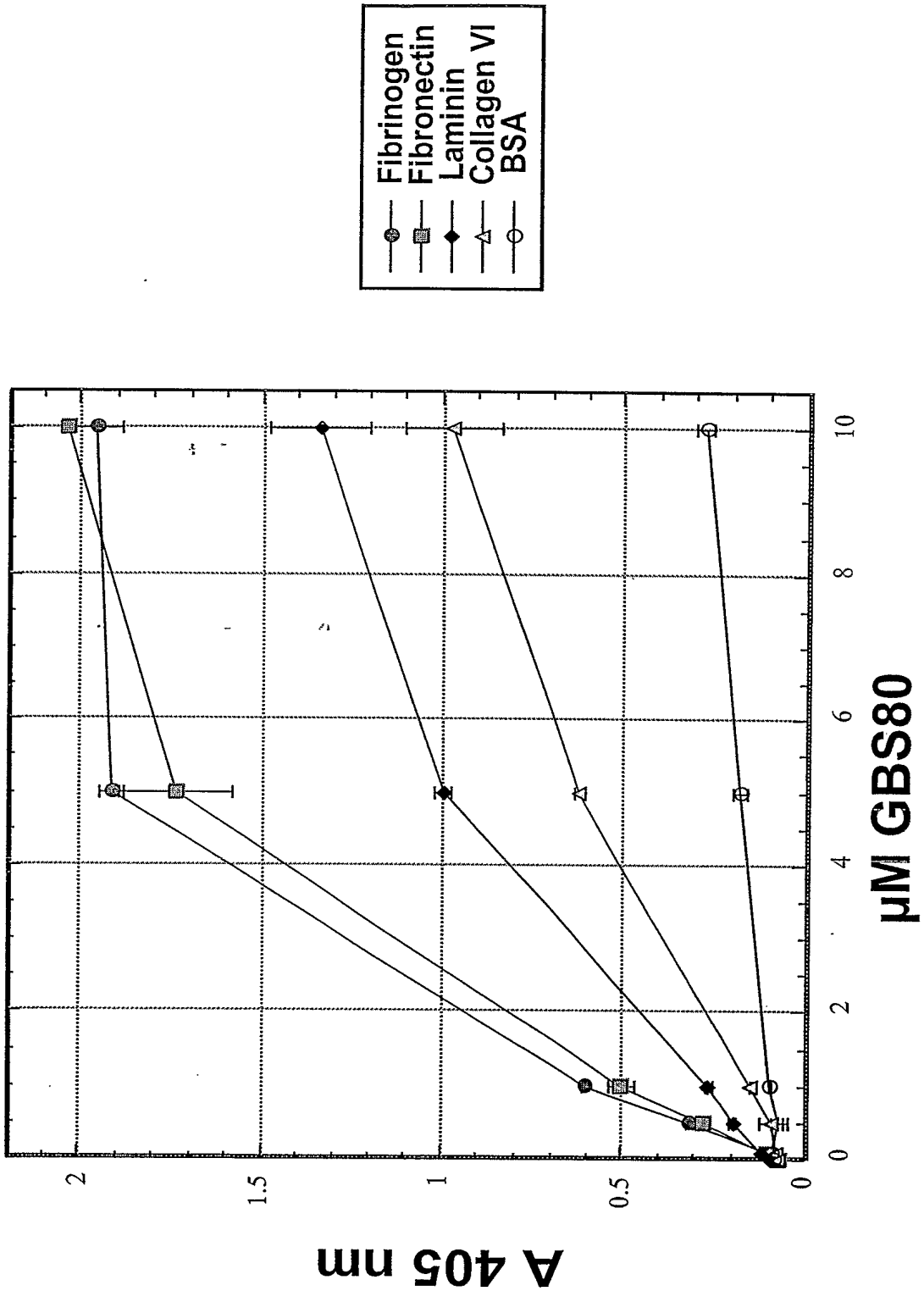
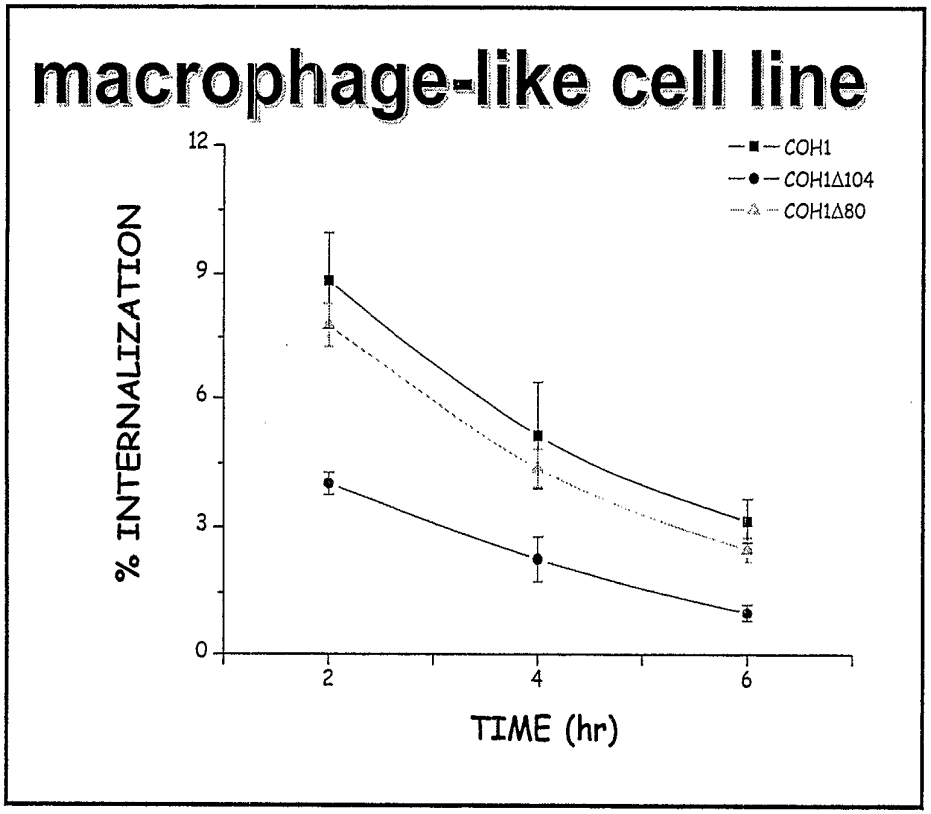
Figure 204

GBS80 binds to ECM proteins

ELISA with purified ECM components and native GBS80 protein



Deletion of GBS104 protein, but not GBS80, reduces the capacity of GBS to invade J774 macrophage-like cell line



J774 cells were infected with GBS COH1 wild type or COH1ΔGBS104/ COH1ΔGBS80 isogenic mutants. After 1h infection, non-adherent bacteria were washed off and intracellular bacteria recovered at 2h, 4h and 6h post-antibiotic treatment. At each time point cells were lysed with 0.25% Triton X-100 and

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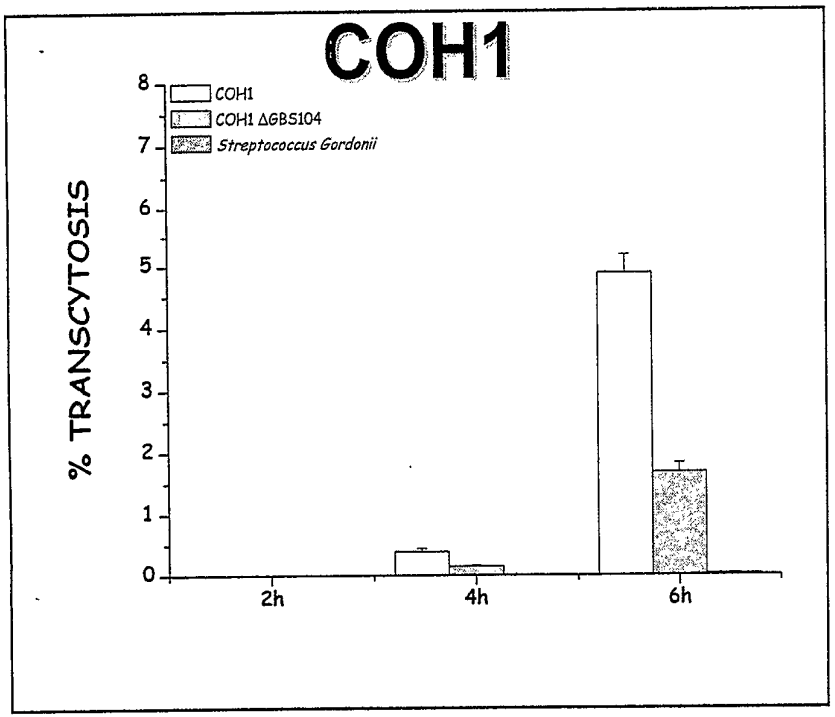
Figure 206

GBS104 knockout mutant strain translocates through an epithelial monolayer less efficiently than the isogenic wild type



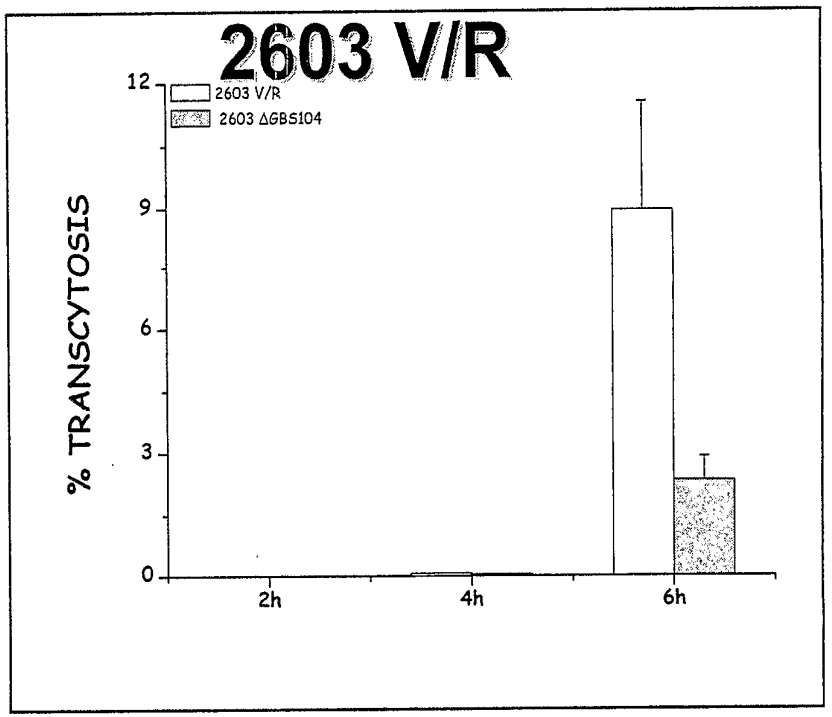


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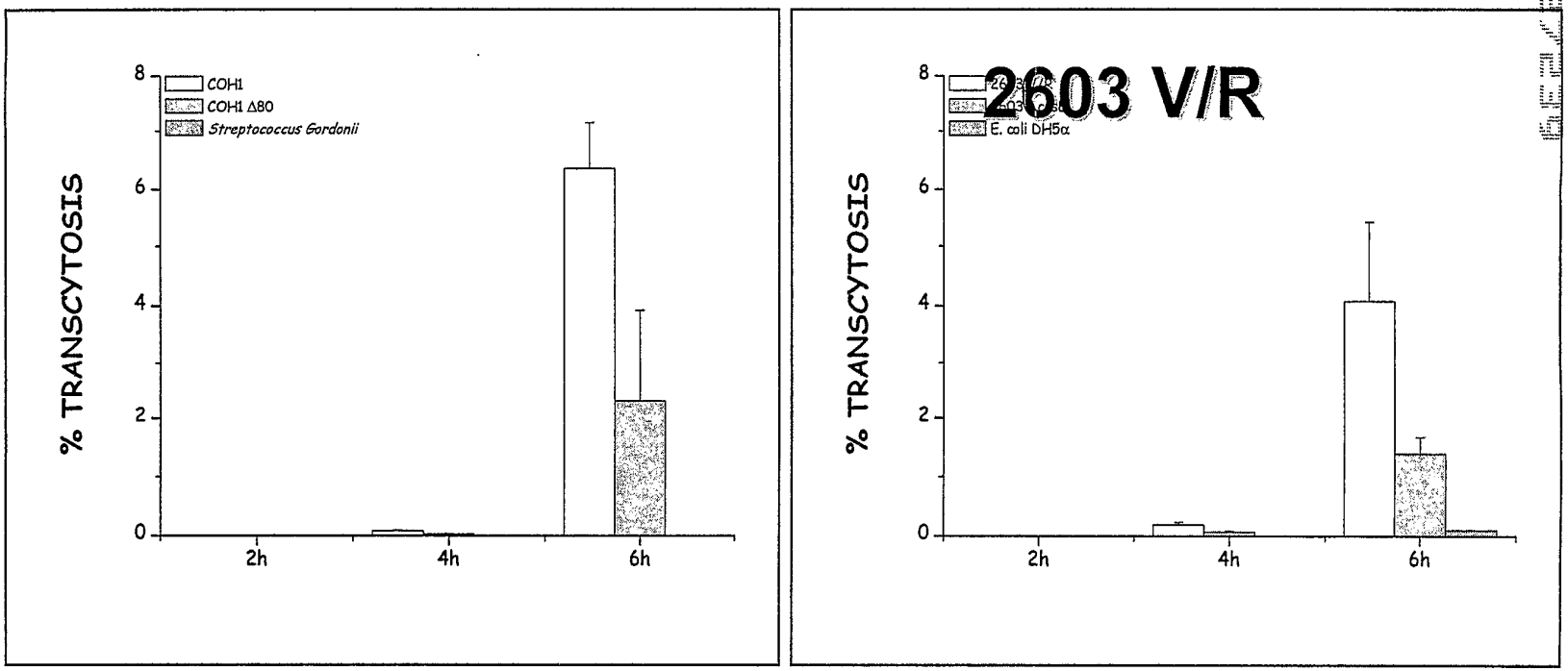
Figure 207

GBS80 knockout mutant strain partially loses the ability to translocate through an epithelial monolayer



Epithelial cells monolayers were inoculated with each bacterium in the apical chamber of a transwell system for 2h and then non-adherent bacteria washed off. Infection was prolonged for further 2h and 4h. Samples were taken from the media of the basolateral side and the number of colony forming units measured. Transepithelial electrical resistance measured prior and after infection gave comparable values, indicating the maintenance of the integrity of the monolayer.

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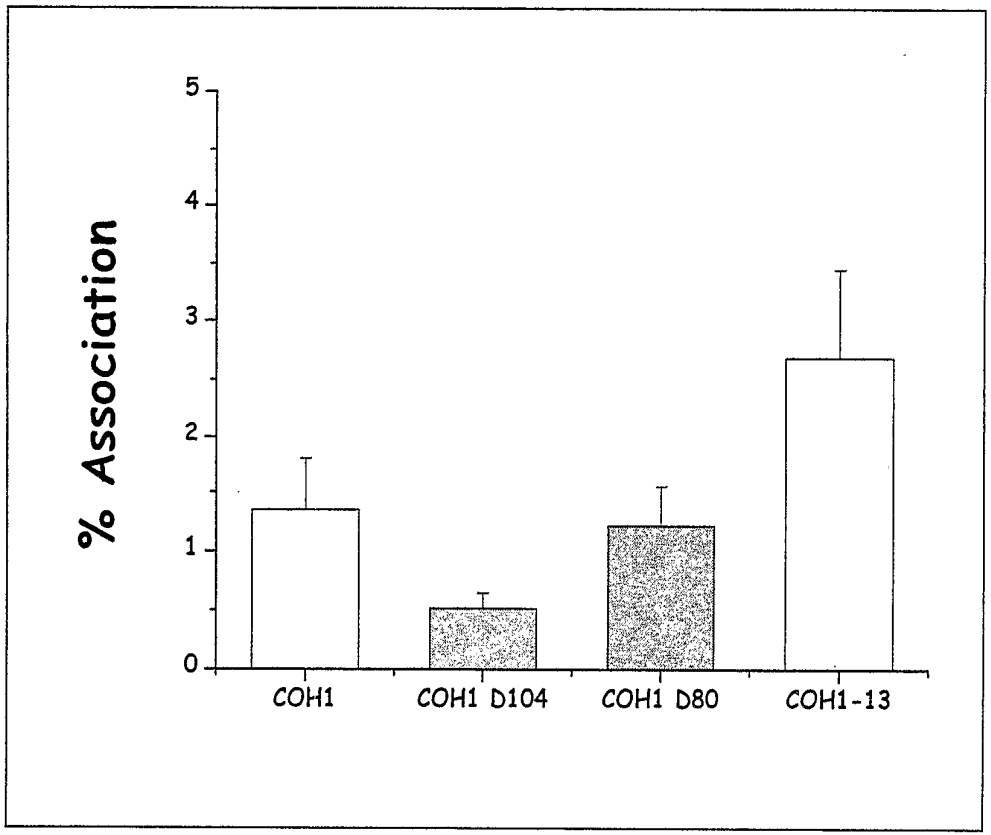
Figure 208

GBS adherence to HUVEC endothelial cells



HUVEC cells were infected with GBS COH1 wild type or COH1DGBS104/ COH1DGBS80 isogenic mutants. After 1h infection, non-adherent bacteria were washed off and cells lysed with 1% saponin and lysates plated on TSA plates.

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Figure 209

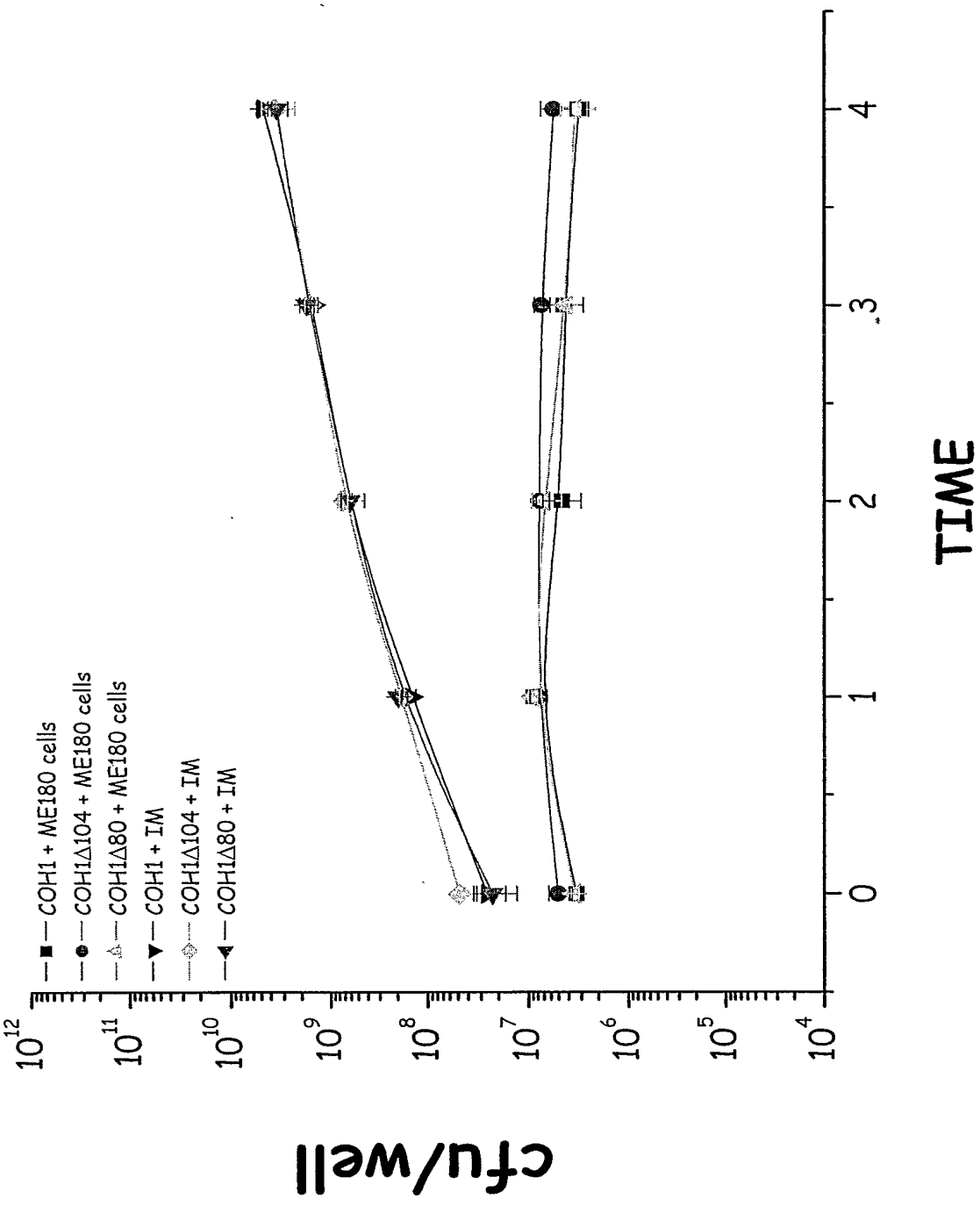

COH1 strain growth rate
COH1 + ME180 cells
COH1Δ104 + ME180 cells
COH1Δ80 + ME180 cells
COH1 + IM
COH1Δ104 + IM
COH1Δ80 + IM
cfu/well
TIME

Figure 210

nding of recombinant GBS104 protein to epithelial ce

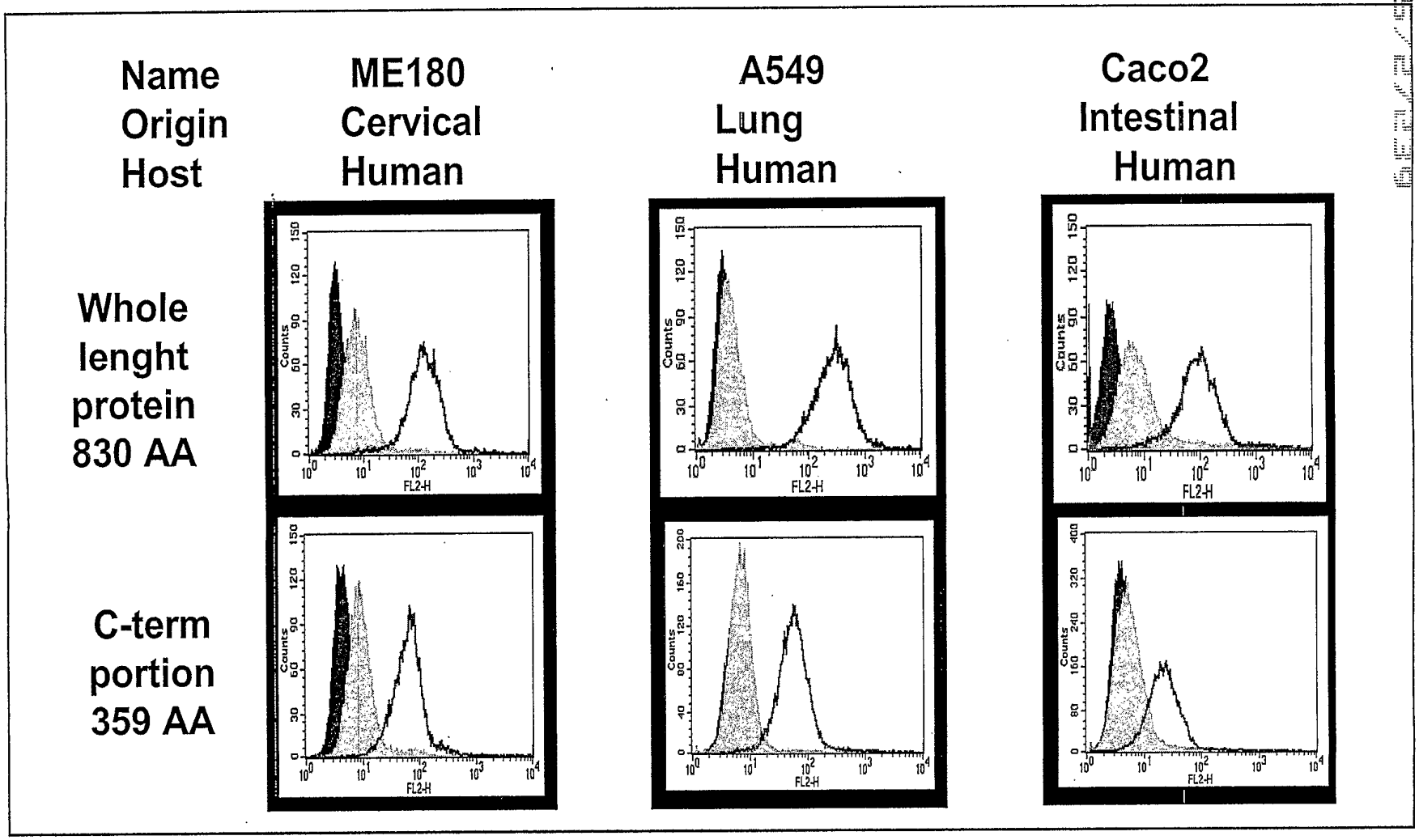
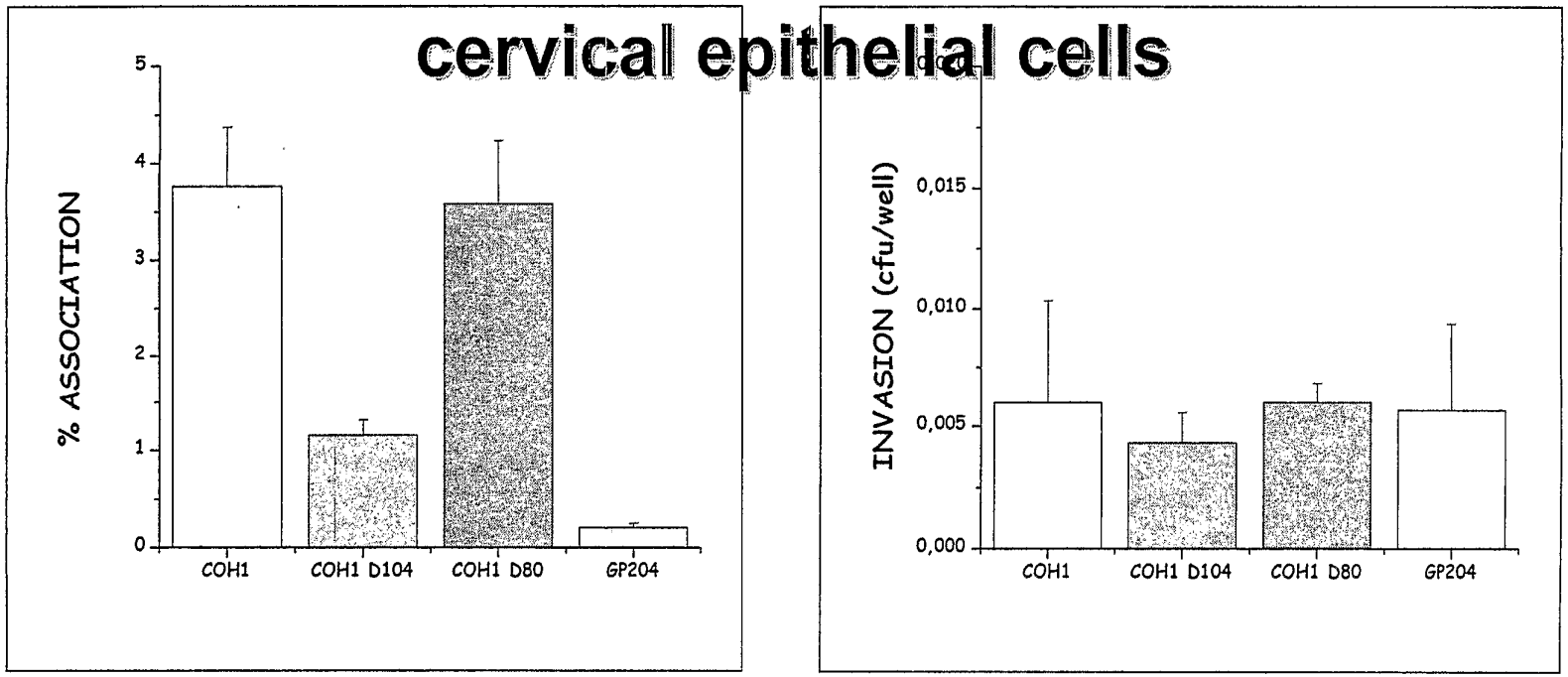


Figure 211

Deletion of GBS104 protein in the GBS strain COH1 reduces the ability of GBS to adhere to ME180 cervical epithelial cells



ME180 cervical carcinoma epithelial cells were infected with GBS COH1 wild type or COH1DGBS104/ COH1DGBS80 isogenic mutants. After 1h infection, non-adherent bacteria were washed off and cells lysed with 1% saponin and lysates plated on TSA plates

Figure 212

COH1 overexpressing GBS80 protein has an impaired capacity to translocate through an epithelial monolayer

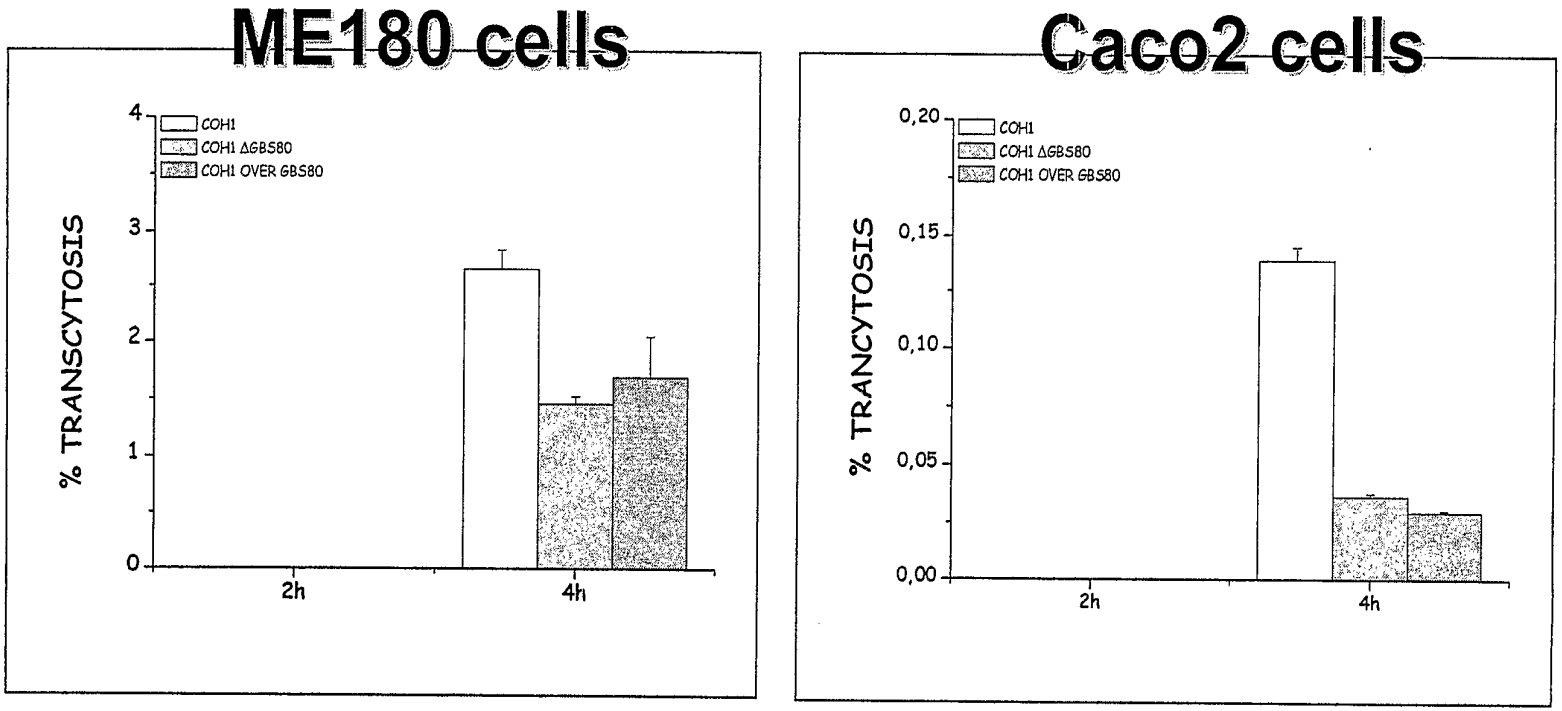
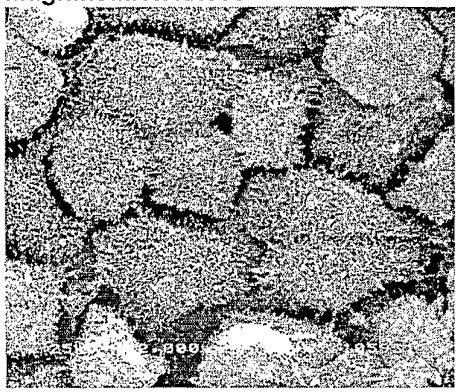


Figure 213

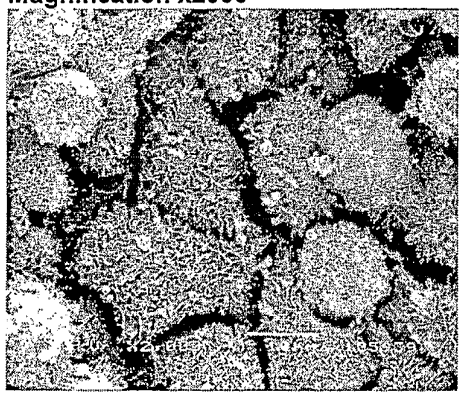
Magnification x2000



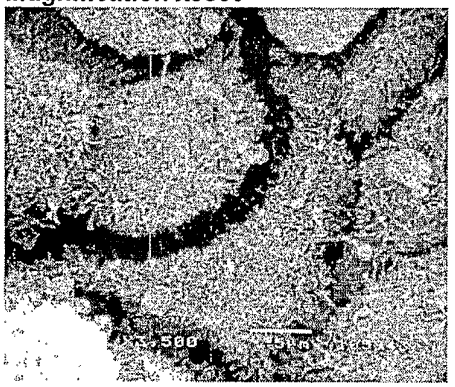
Magnification x3500

Non-infected ME180 cells (SEM)

Magnification x2000



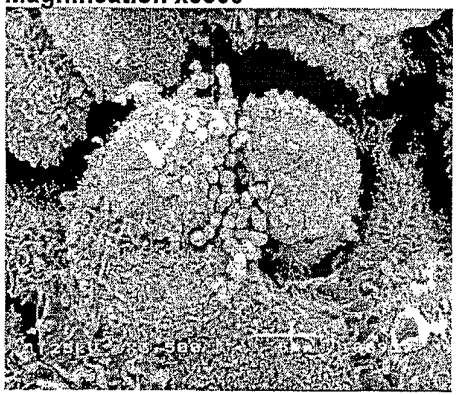
Magnification x3500



ME180 cells infected with COH1 strain (SEM)

Magnification x2000

Magnification x3500



ME180 cells infected with COH1 strain overexpressing GBS80 (SEM)

Figure 214

OH1 infection of ME180 cells
F-actin Blue
α- serotype III capsule Red
α-GBS80 Green
OH1 overexpressing GBS80
infection of ME180 cells
F-actin Blue
α- serotype III capsule Red
α-GBS80 Green

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Figure 215

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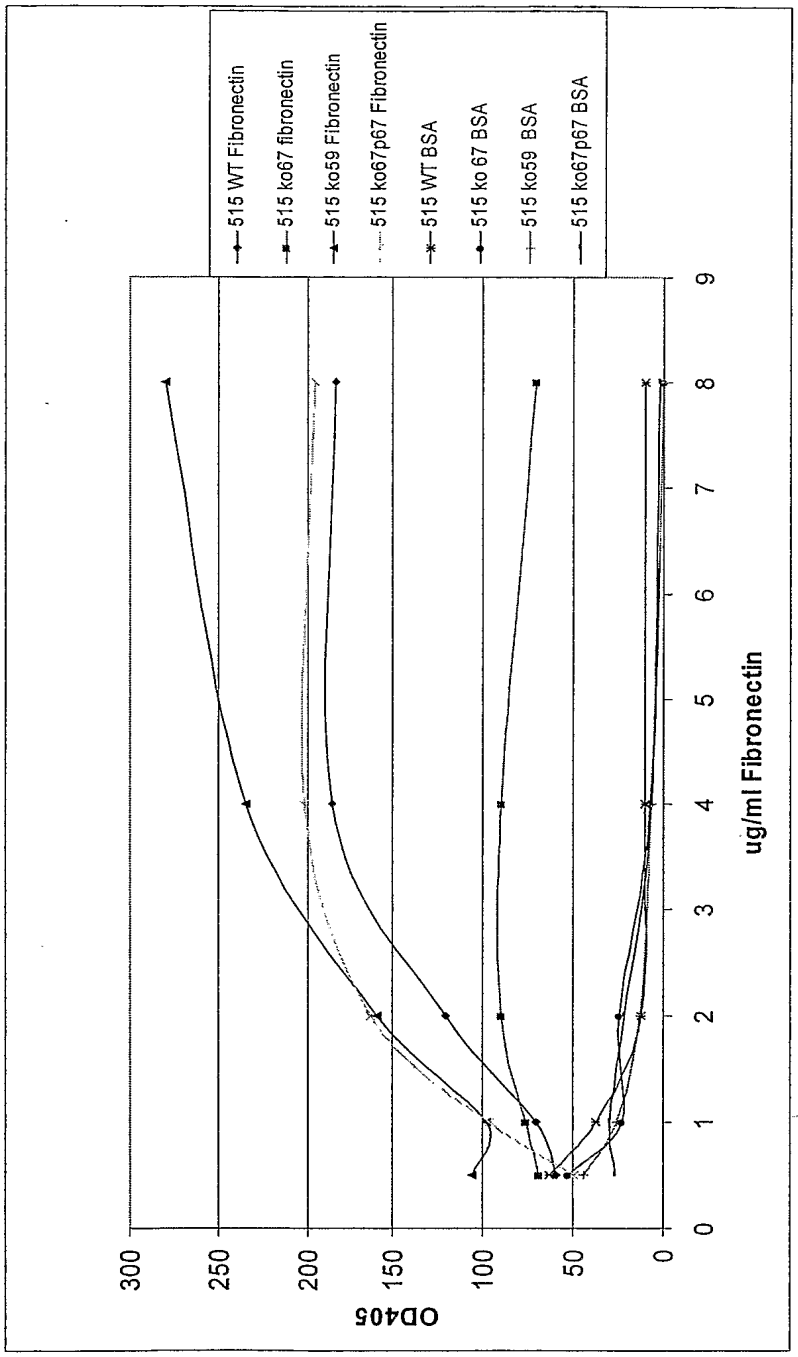
Figure 216

Figure 217


GBS 67 binds to fibronectin
515 WT Fibronectin
515 ko67 fibronectin
515 ko59 Fibronectin
515 ko67p67 Fibronectin
515 WT BSA
515 ko 67 BSA
515 ko59 BSA
515 ko67p67 BSA
OD405
300
250
200
150
100
50
0
0
1
2
3
4
5
6
7
8
9
ug/ml Fibronectin

PCT/US05/27239

Figure 218

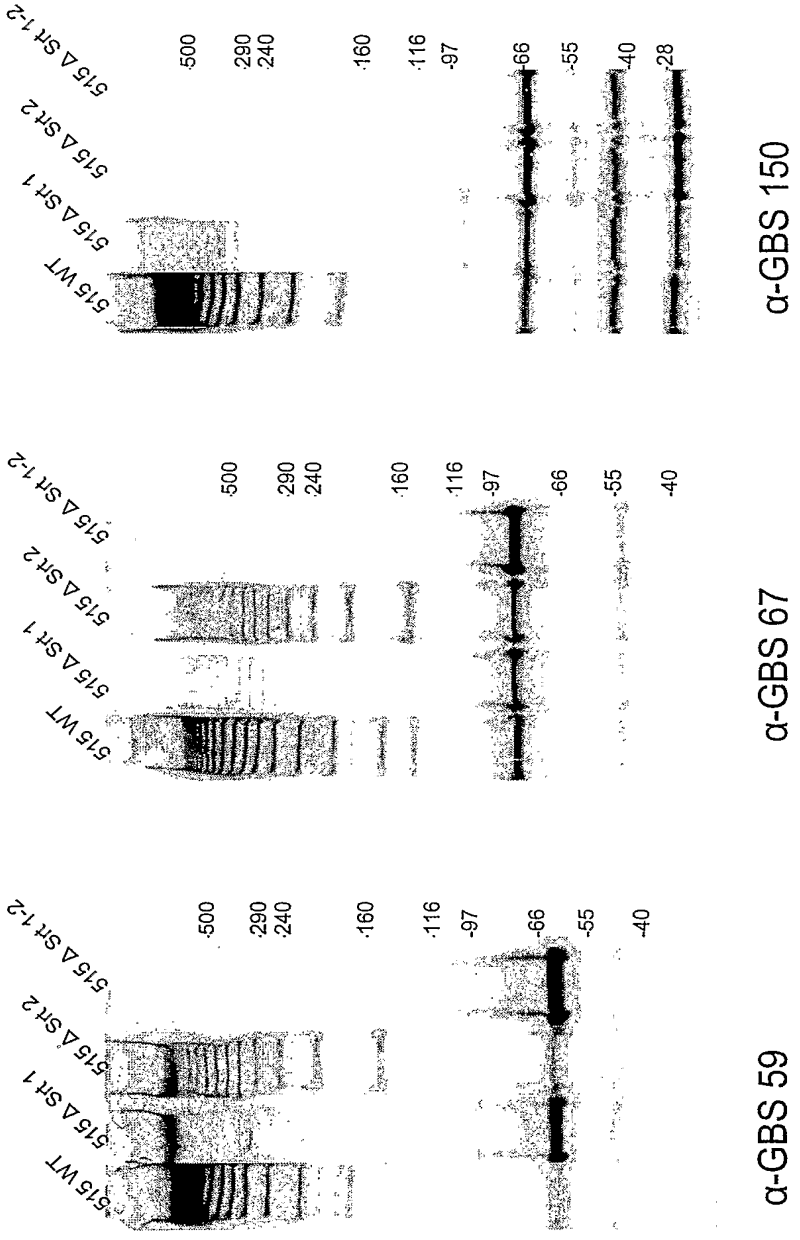


Figure 219

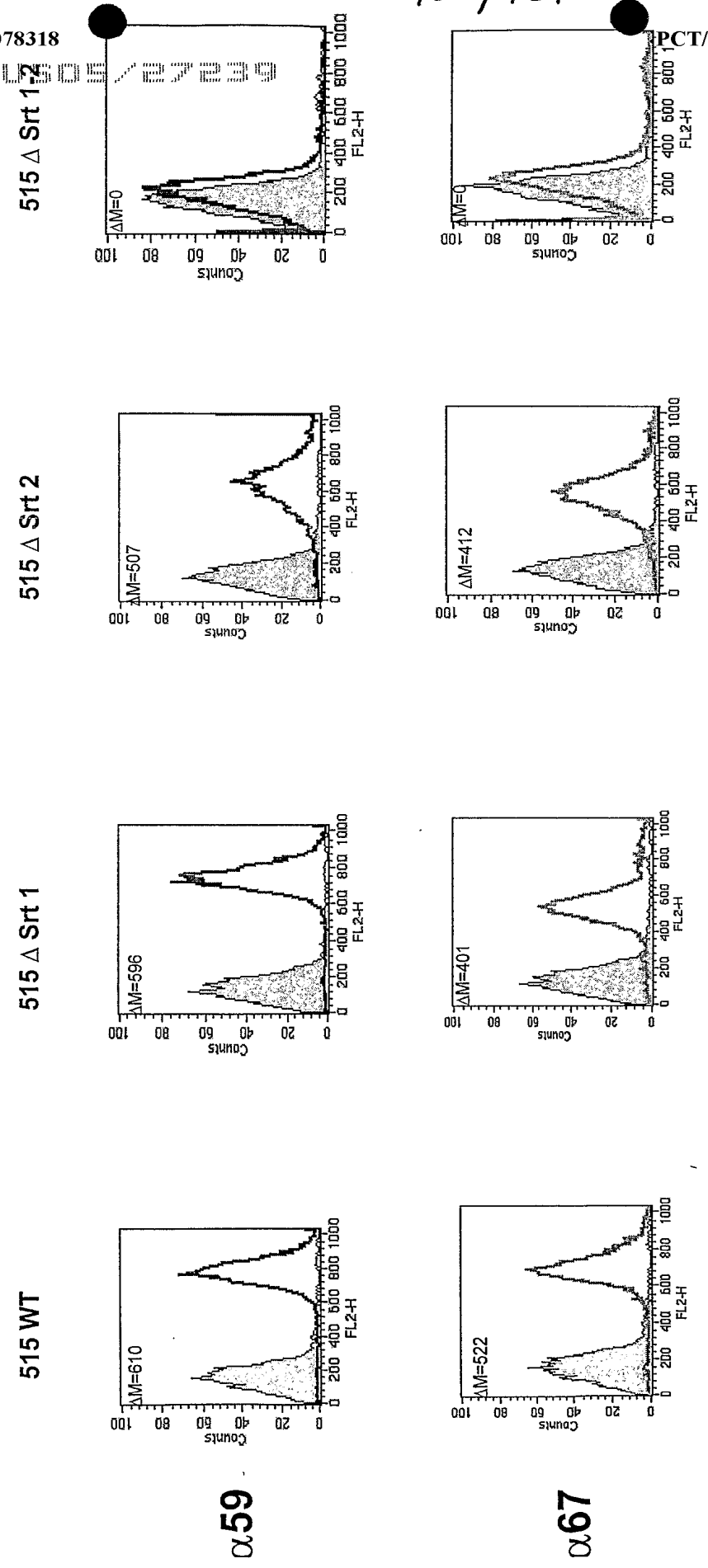

515 WT
515 Δ Srt 1
515 Δ Srt 2
515 Δ Srt 1-2
α59
α67
ΔM=610
ΔM=596
ΔM=507
ΔM=0
ΔM=522
ΔM=401
ΔM=412
ΔM=0
Counts
FL2-H

Figure 220

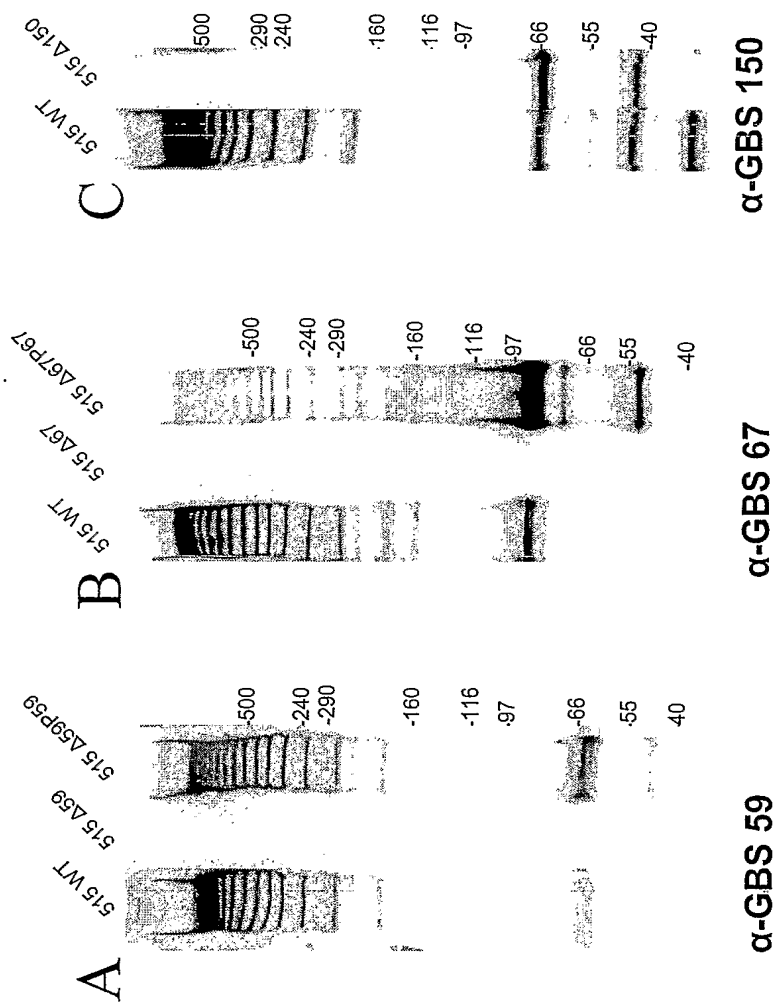
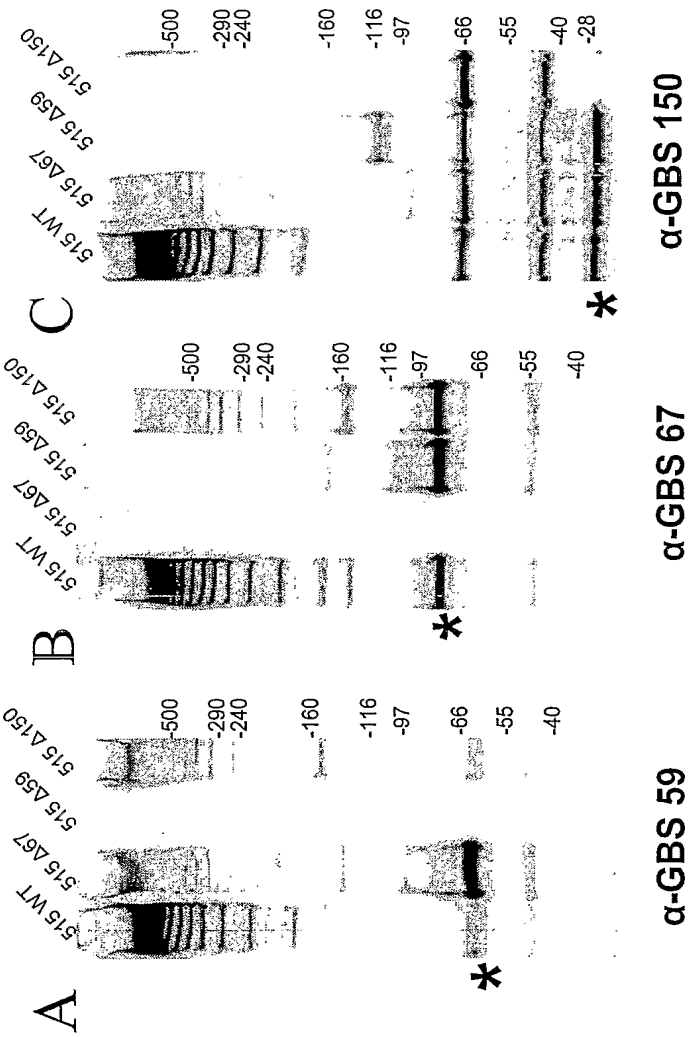

A
515 WT
515 A59
515 A59P59
-500
-240
-290
-160
-116
-97
-66
-55
40
α-GBS 59
B
515 WT
515 A67
515 A67P67
-500
-240
-290
-160
-116
-97
-66
-55
-40
α-GBS 67
C
515 WT
515 A150
500
290
240
160
116
97
66
55
40
α-GBS 150

Figure 221


A
B
C
α-GBS 59
α-GBS 67
α-GBS 150
515 WT
515 A67
515 A59
515 A150
-500
-290
-240
-160
-116
-97
-66
-55
-40
-28
*

PCT/US05/27239

Figure 222

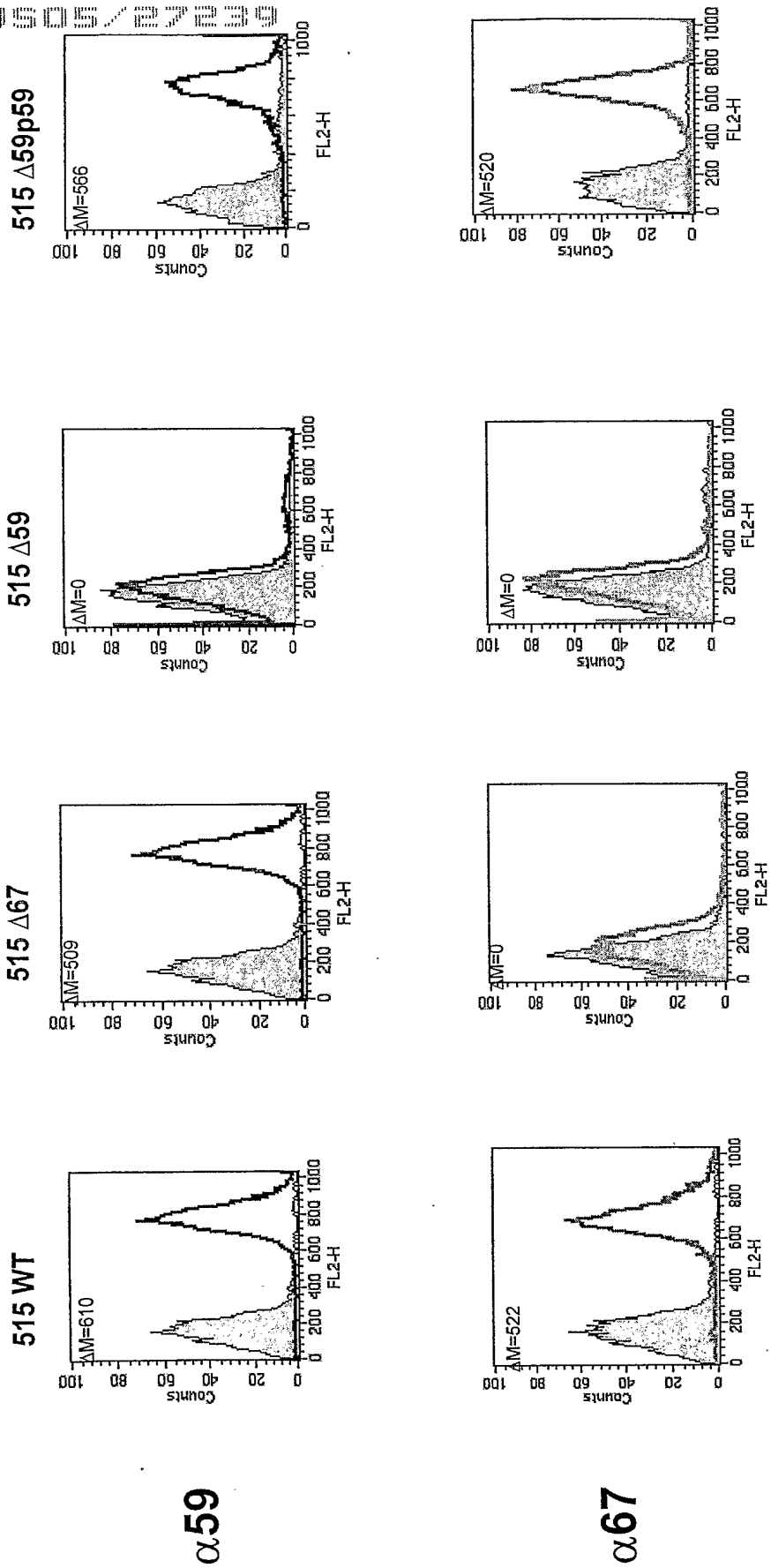
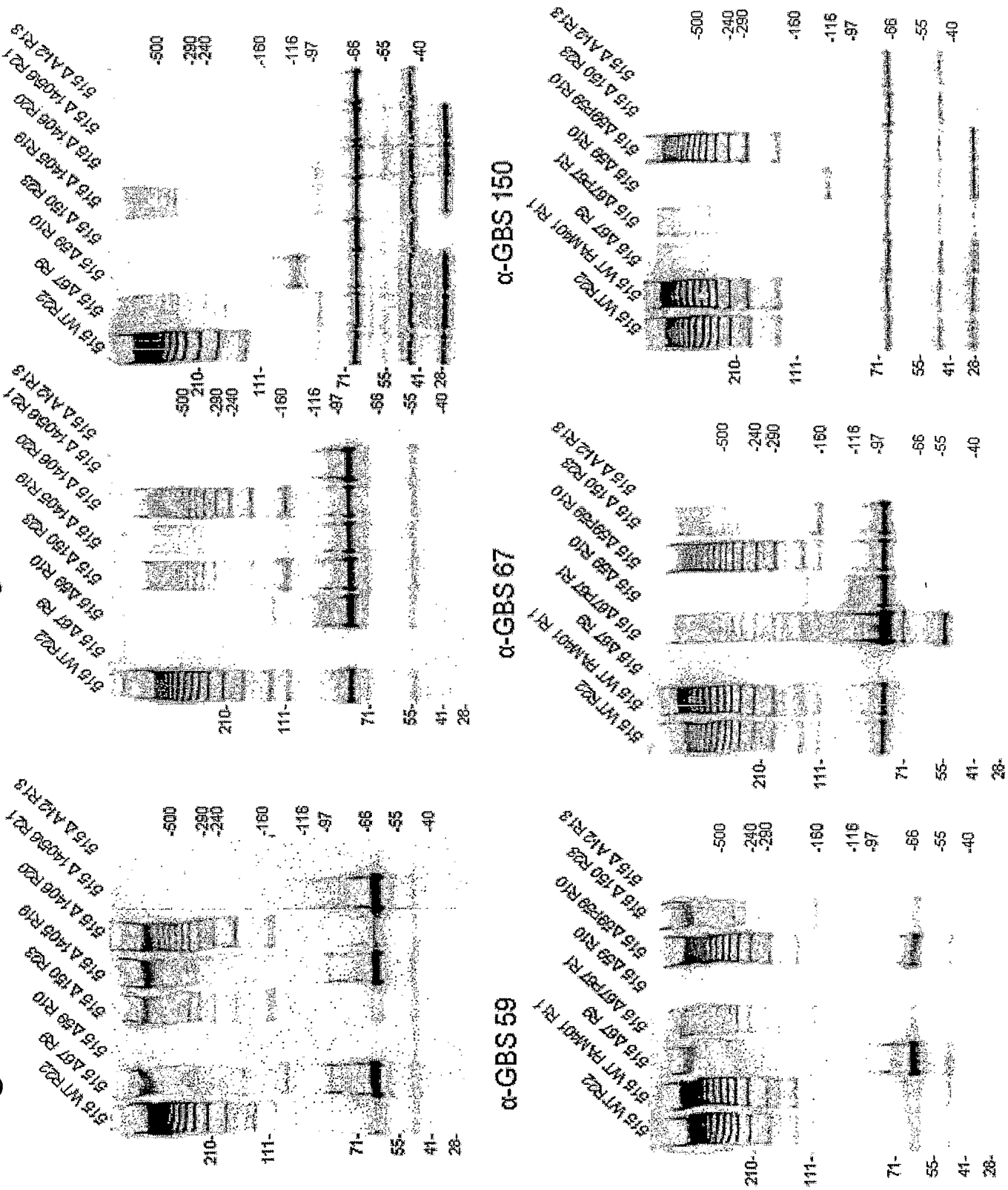


Figure 223


Summary WB
α-GBS 150
α-GBS 67
α-GBS 59
616 WT R22
616 WT PAM401 R1
616 ΔGF R9
616 ΔGFTGT R1
616 ΔG9 R10
616 ΔG9P29 R10
616 Δ150 R23
616 Δ A12 R13
616 Δ140S8 R21
616 Δ140E R20
616 Δ140S R19
616 Δ180 R23
616 ΔG9 R10
616 ΔG9P29 R10
616 Δ150 R23
616 Δ A12 R13
500
290
240
160
116
97
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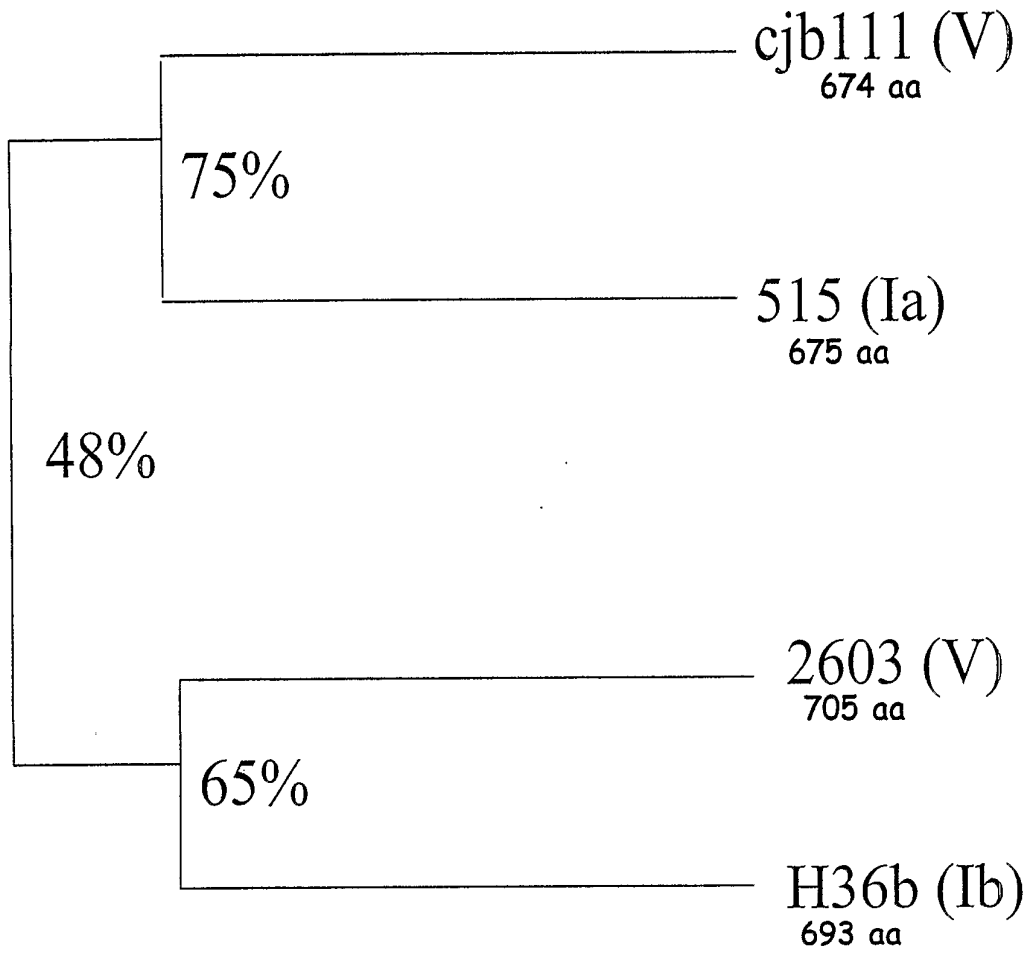
55
40
210
111
71
55
41
28

GBS 59 allelic variants



GBS strain	% AA identity
7357b (Ib)	100
5518 (Ib)	100
5364 (V)	100
1999 (IV)	100
5408 (VIII)	98
coh31 (III)	98
d136c (III)	98
nem316 (III)	98

dk1 (Ia)	100
dk8 (Ia)	100
davis (Ia)	100
5551 (Ia)	100
2986 (Ia)	100
2110 (V)	100
2210 (IV)	100

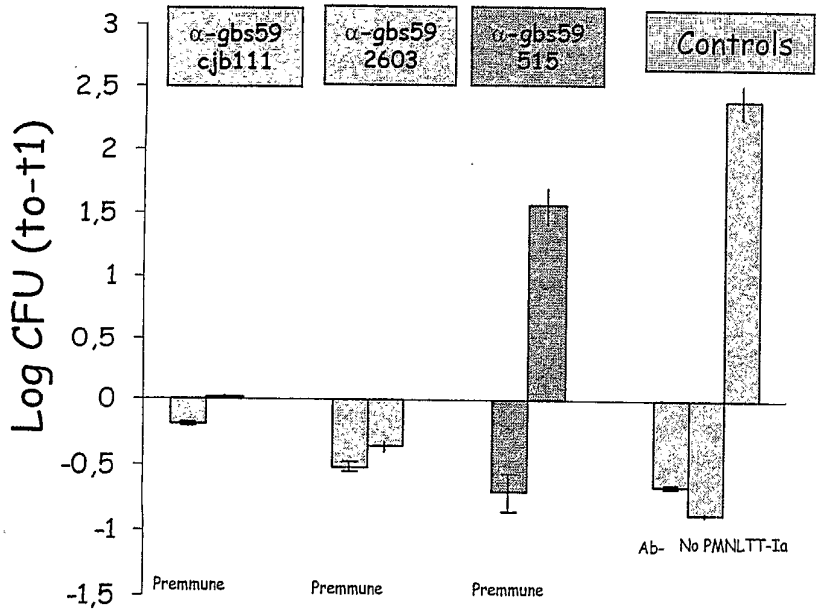
18RS21 (II)	100
3050 (II)	100
2141 (II)	100
1998 (III)	100
2928 (VII)	99,9

2274 (IV)	99,9
2129 (Ib)	99,7
5401 (II)	99,8

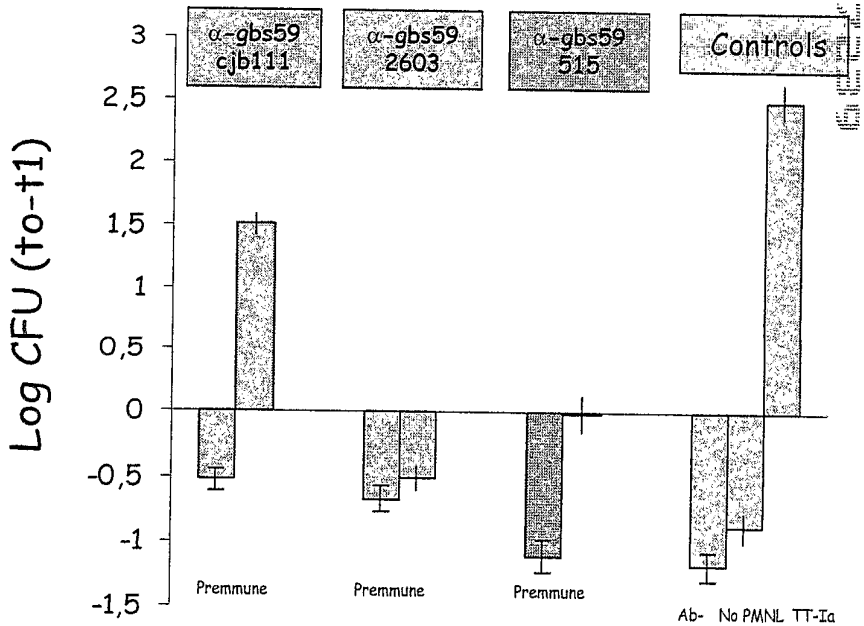
Figure 224

Figure 225

GBS 59 is opsonic only against homologous strain



• 515 (Ia) GBS strain



• cjb111 (V) GBS strain

Figure 226 A

		GBS 59		
GBS strains	Type	PCR	FACS (a-cjb111)	FACS (a-2603)
DK1	Ia	+	565	
DK8		+	559	
Davis		+	577	
515		+	583	0
090		+	0	0
2986		+	443	
5551		+	524	
H36B	Ib	+	0	410
7357b-		+	596	
5518		+	190	
D136C	III	+	504	
COH31		+	505	
1998		+	59	510
18RS21	II	+	0	353
DK21		+	249	0
3050		+	0	570
5401		+	0	400
2141		+	0	371
CJB111	V	+	625	0
2603		+	0	73
5364		+	593	
2110		+	590	0
2274	IV	+	0	400
1999		+	594	
2210		+	636	
5408	VIII	+	537	
CJB110	NT	+	0	0
1169		+	227	0

		GBS 59		
GBS strains	Type	PCR	FACS (a-cjb111)	FACS (a-2603)
A909	Ia	-	22	
2177	Ib	-	75	
COH1		-	0	0
M732		-	0	
M781	III	-	17	
5376		-	60	
5435		-	55	
SMU071	VIII	-	0	
JM9130013		-	0	0

Figure 226 B

Figure 227 A

GBS strains	Type	FACS (D Mean) GBS 80	GBS 104	GBS 67	GBS 322	GBS 59
DK1	Ia	0	0	478	153	565
DK8		0	0	475	213	559
Davis		0	0	430	86	577
515		0	0	409	227	583
090		0	0	0	0	0
A909		46	29	0	0	0
2986		0	0	397	0	443
5551		0	0	485	36	524
2177	Ib	477	355	66	323	0
H36B		0	0	444	105	410
7357b-		91	0	316	102	596
5518		31	0	162	0	190
COH1	III	305	226	0	130	0
D136C		40	40	406	460	504
COH31		0	0	273	479	505
M732		141	101	0	292	0
M781		111	136	0	224	0
1998		140	77	350	288	510
5376		165	156	0	76	0
5435		93	100	0	88	0
18RS21	II	0	0	103	471	353
DK21		0	0	331	342	249
3050		71	46	460	188	570
5401		75	28	618	135	400
2141		0	0	370	76	371
CJB111	V	365	236	481	58	625
2603		62	0	105	293	73
5364		454	281	394	463	593

2110		0	0	589	0	590
2274	IV	123	62	484	161	400
1999		0	389	453	55	594
2210		0	0	574	0	636
SMU071	VIII	556	393	74	170	0
JM9130013		587	436	72	133	0
5408		0	0	433	0	537
CJB110	NT	0	0	245	587	0
1169		0	0	443	213	227
D Mean > 200		6/37 (16%)	7/37 (19%)	24/37 (65%)	14/37 (38%)	24/37 (65%)

Figure 227B

PCT/US05/27239

Figure 228

GBS Strain	Type	FACS (ΔMean)																Δmean neg. control
		GBS 80 142-F		GBS 104 Mab		GBS 322 86		GBS 67 81		GBS 67 H36B		GBS 59 2603		GBS 59 CJB111		GBS 59 515		
cdc-1	II	114	95	0	0	122	122	360	341	422	403	92	73	254	235	306	287	19
cdc-2	IB	173	69	92	0	95	75	552	448	590	486	135	31	635	531	197	93	104
cdc-3	II	566	508	360	302	85	60	364	306	433	375	111	53	448	390	310	252	58
cdc-4	V	524	432	337	245	284	204	577	485	625	533	105	13	674	582	303	211	92
cdc-5	II	140	0	0	0	462	300	487	297	563	373	175	0	373	183	440	250	190
cdc-6	V	544	484	361	301	95	95	586	526	601	541	55	0	686	626	302	242	60
cdc-7	III	155	116	44	5	134	118	95	56	138	99	74	35	92	53	91	52	39
cdc-8	III	347	304	192	149	74	62	98	55	170	127	72	29	88	45	108	65	43
cdc-9	II	89	65	0	0	226	191	390	366	504	480	181	157	317	293	410	386	24
cdc-10	IA	46	24	0	0	152	152	494	472	531	509	43	21	16	0	48	26	22
cdc-11	IA	17	0	0	0	295	135	569	550	569	550	47	28	467	448	648	629	19
cdc-12	V	439	430	290	281	60	30	174	165	227	218	52	43	139	130	207	198	9
cdc-13	IA	33	0	0	0	216	146	469	436	469	436	100	67	361	328	571	538	33
cdc-14	III	78	68	10	0	213	191	50	40	85	75	38	28	69	59	67	57	10
cdc-15	III	119	53	24	0	108	98	48	0	127	61	89	23	105	39	100	34	66
cdc-16	V	363	335	177	149	310	270	70	42	127	99	48	20	130	102	128	100	28
cdc-17	III	160	0	163	0	408	248	377	217	410	250	441	281	359	199	167	7	160
cdc-18	III	49	28	0	0	239	218	34	13	36	15	16	0	49	28	56	35	21
cdc-19	III	182	101	0	0	361	280	310	229	312	231	384	303	220	139	0	0	81
cdc-20	V	348	304	203	159	380	336	166	122	211	167	114	70	232	188	128	84	44
cdc-21	II	222	132	83	0	150	60	331	241	336	246	0	0	420	330	59	0	90
cdc-22	IA	0	0	13	13	43	43	238	238	238	238	43	43	38	38	429	429	0
cdc-22 (9-6-05)		23	0	34	0	110	20	310	220	320	230	113	23	117	27	344	254	90
cdc-23	V	484	484	374	374	278	278	124	124	206	206	11	11	91	91	236	236	0
cdc-24	V	137	52	0	0	333	248	90	5	110	25	110	25	120	35	70	0	85
cdc-25	IA	0	0	0	0	351	190	530	370	565	405	495	335	442	282	625	465	160
cdc-26	II	117	2	0	0	185	70	210	95	285	170	30	0	175	60	210	95	115
cdc-27	III	323	95	34	0	498	270	346	118	406	178	424	196	314	86	64	0	228
cdc-28	V	150	92	20	0	132	74	462	404	505	447	0	0	526	468	78	20	58
cdc-29	IV	90	73	65	48	195	178	90	73	150	133	150	133	138	121	110	93	17
cdc-30	V	390	187	336	133	348	145	229	26	244	41	113	0	268	65	223	20	203
cdc-31	IA	22	0	68	0	306	182	368	244	386	262	126	2	248	124	426	302	124
cdc-32	IA	45	0	12	0	260	175	190	105	205	120	30	0	100	15	185	100	85
cdc-33	II	50	0	0	0	306	156	134	0	237	87	4	0	180	30	190	40	150
cdc-34	III	152	60	47	0	342	250	44	0	74	0	27	0	102	8	48	0	92
cdc-35	V	227	227	40	40	246	246	395	395	415	415	0	0	550	550	142	142	0
cdc-36	IB	25	15	8	0	30	20	154	144	174	164	33	23	222	212	20	10	10
cdc-37	III	168	53	61	0	361	246	82	0	133	18	83	0	132	17	75	0	115
cdc-38	II	140	14	30	0	338	212	124	0	198	72	158	32	138	12	104	0	126
cdc-39	II	126	0	0	0	316	148	466	298	514	346	438	270	184	16	34	0	168
cdc-40	V	420	366	214	160	22	0	103	49	162	108	90	36	209	155	192	138	54
cdc-41	II	146	31	15	0	380	265	330	215	425	310	140	25	280	165	315	200	115

Figure 229

Expected strain coverage

MIX GBS proteins

	vaccine options	w/o 59	w/o 322	w/o 104+322	w/o 59+322		
n. antigens FACS+++	80+104+67+59+322	80+104+67+322	80+104+67+59	80+67+59	80+104+67	80+67	80+59
1	**89%**	**89%**	**80%**	**80%**	**79%**	**79%**	**74%**
2	74%	51%	71%	64%	24%	16%	16%
3	23%	14%	17%	16%	13%		

- GBS 322 but not GBS 59 is important to increase strain coverage
- GBS 59 probably could be useful to increase the vaccine strength

Assumption:

- Protein antigens that are highly accessible to antibodies confer 100% protection with suitable adjuvants

WO 2006/078318 PCT/US2005/027239

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Figure 230

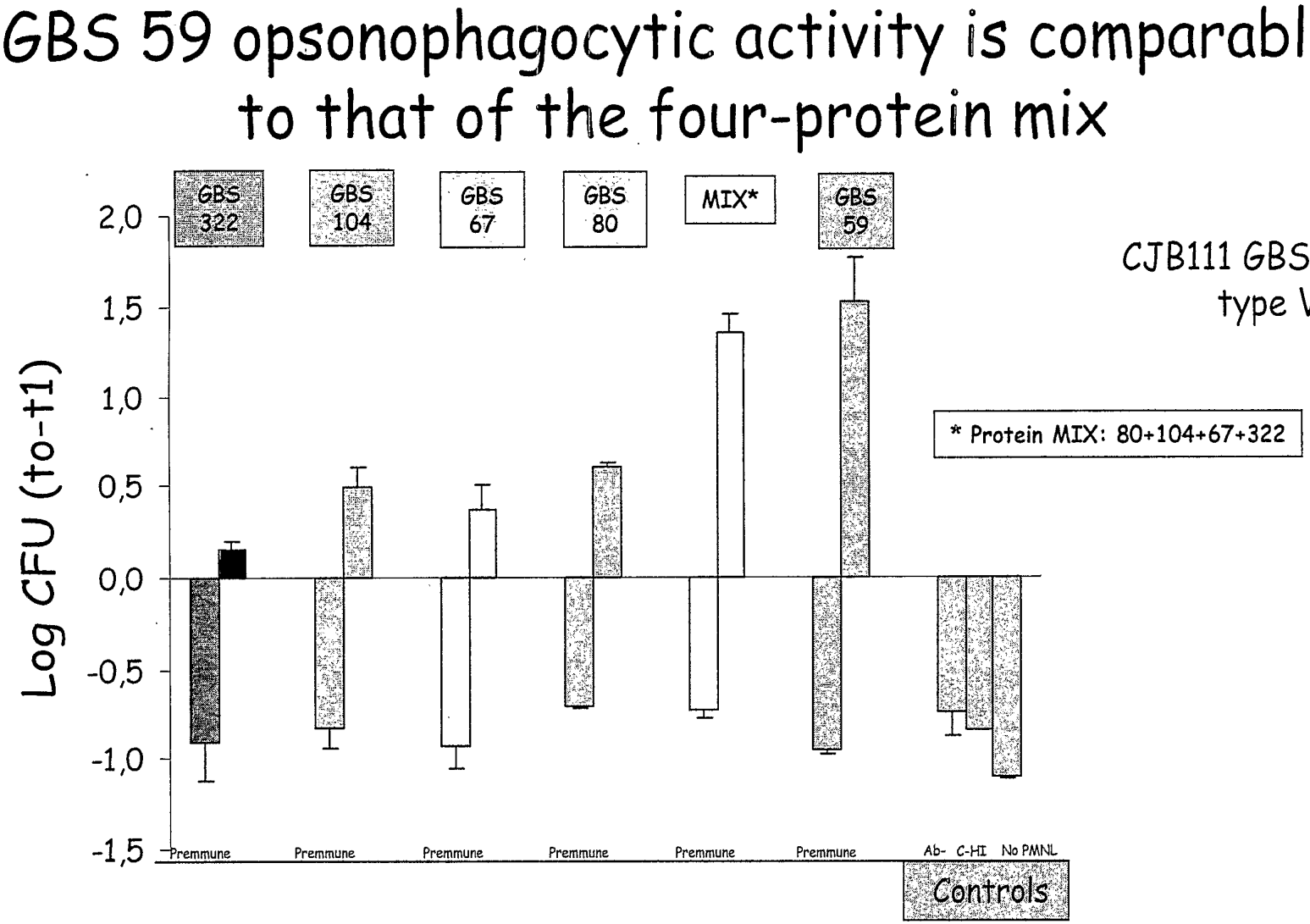

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Figure 231

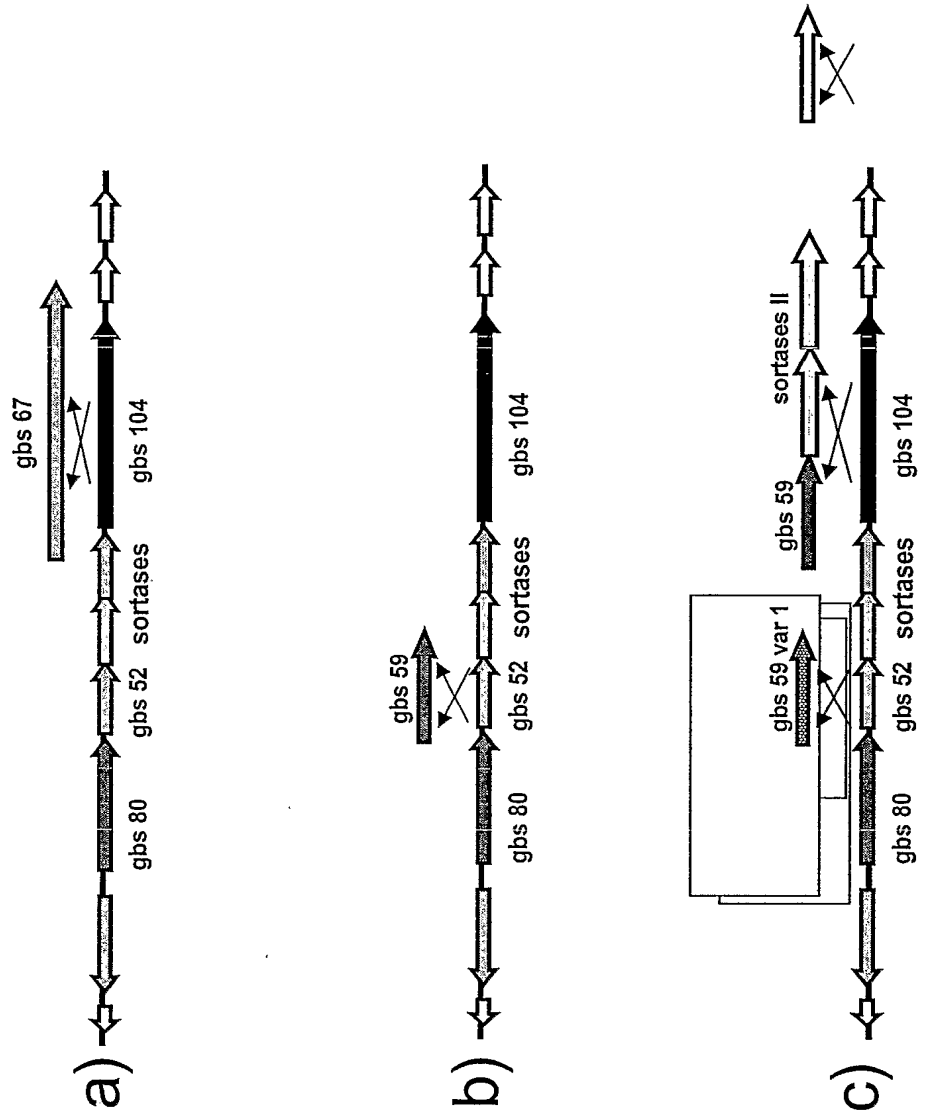

a)
gbs 67
gbs 104
gbs 52
sortases
gbs 80
b)
gbs 59
gbs 104
gbs 52
sortases
gbs 80
c)
sortases II
gbs 59
gbs 59 var 1
gbs 104
gbs 52
sortases
gbs 80

Figure 232

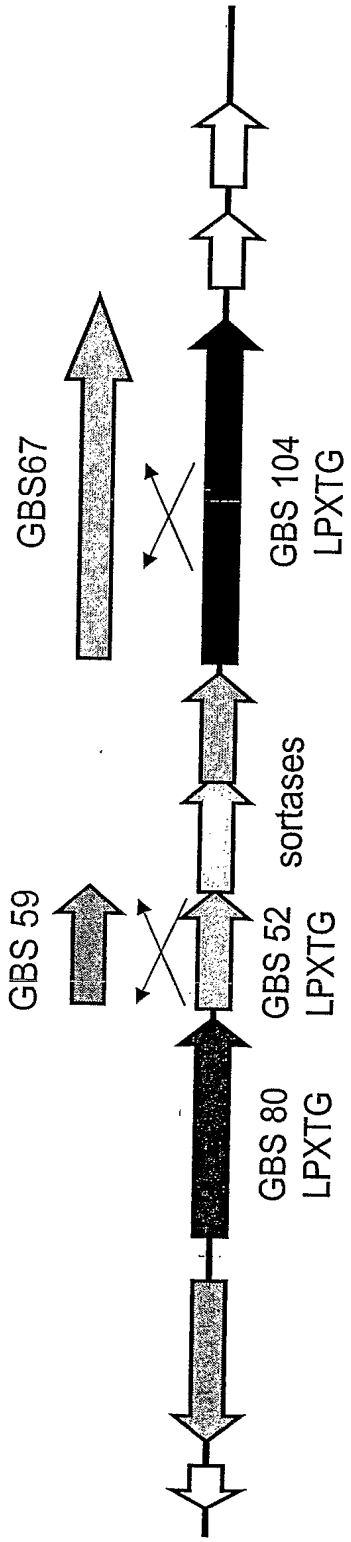
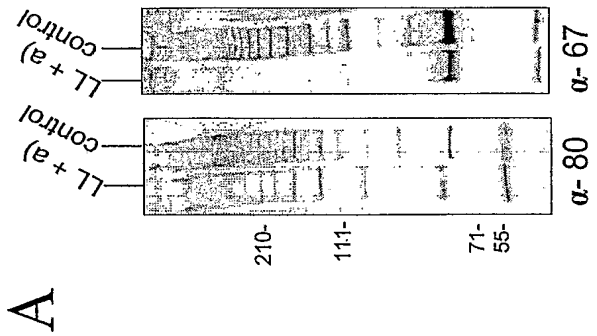


Figure 233


A
LL + a)
control
LL + a)
control
α- 80
α- 67
210-
111-
71-
55-

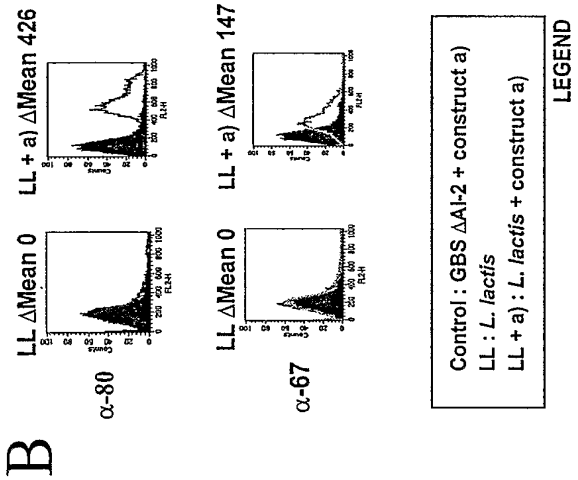
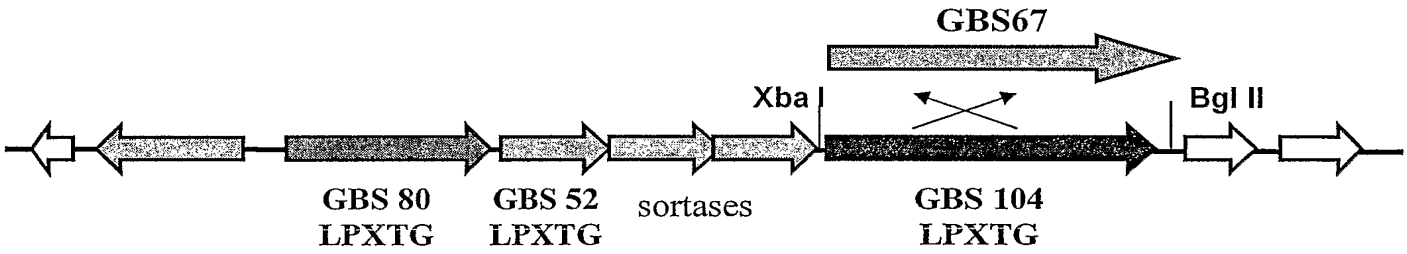

B
LL ΔMean 0
LL + a) ΔMean 426
α-80
LL ΔMean 0
LL + a) ΔMean 147
α-67
Control : GBS ΔAI-2 + construct a)
LL : L. lactis
LL + a) : L. lactis + construct a)
LEGEND

Figure 234 A

Introducing Heterologous Antigens into AI-1 pilus to Obtain Protection Across GBS Strains

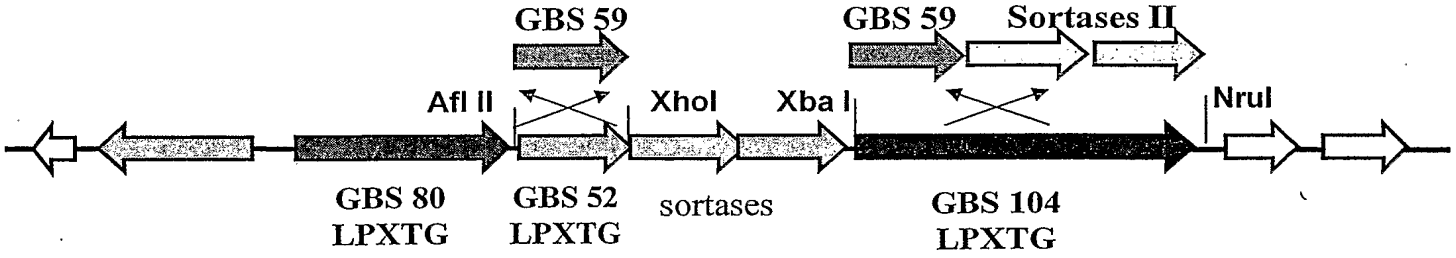
1- Substitution of GBS 104 with GBS67 from Island II



Oligo GBS67pAMXbafor AGTCAGTCTCTAGACGGCACAATAGGAGTTGTAAA
Oligo GBS67pAMBglrev CACCTGTCATAGATCTTAAGAATACTAAAGCGCATAA

2- Substitution of GBS52 or 104 with:

a) **GBS 59 alleles 515 or CJB**
b) **GBS 59 allele CJB111 + sortases island II**
c) **GBS 59 allele 515 + GBS 59 CJB111 + sortases island II**



DETAILS:

a) Oligos to be used:

Oligo 59pAMAflfor1 AGTCAGTCCTTAAGCCGCATATTATTAATCATGTTG (allele 515)
Oligo 59pAMAflfor1 AGTCAGTCCTCGAGTTAAACTTCCTCTGATTGACG (allele 515)
Oligo 59pAMAflfor2 AGTCAGTCCTTAAGAAGGAGTGGTGCTGCGGTAA (allele CJB111)
Oligo 59pAMXhorev2 AGTCAGTCCTCGAGTTAAGCTTCCTCTGATTGACG (allele CJB111)

b) Oligos to be used:

Oligo GBS59XbaF CTAGTGATATATCTAGAGAAAAAG
Oligo Sort59NruR CTAGCTAGTCGCGACTTTTTCATTTTTGATTTCCCTTTC

Figure 234 B

3- Substitution of GBS104 with a fusion of GBS322-GBS67 to include GBS 322 into AI-1

a) Construct 1: GBS67 complete sequenze included

b) Construct 2: Only part of GBS 67 was included *(deleted bold region)*

DETAILS:

a) Construct 1:

Legend:

Pink GBS322

Black GBS67

Black Bold: fragment of GBS67 eliminated in costruct 2

Green PK motifs

Yellow E motifs

Red LPXTG

> gbs67-515 + 322

MRKYQKFSKILTLSLFCLSQIPLNTNVLGESTVPENGAKGKLVVKKTDDQNKPLSKATFV
LKTTAHPESKIEKVTAELTGEATFDNLIPGDYTLSEETAPEGYKKTNQTWQVKVESNGKT
TIQNSGDKNSTIGQNQEELDKQYPPTGIYEDTKESYKLEHVKGSVPNGKSEAKAVNPYSS
EGEHIREIPEGTLSKRISEVGDLAHNKYKIELTVSGKTIVKPVDKQKPLETDTTWTARTVSEV
KADLVKQDNKSSYTVKYGDTLSVISEAMSIDMNVLAKINNIADINLIYPETTLTVTYDQKSHTA
TSMKIETPATNAAGQTTATVDLKTNQVSVADQKVSLNTISEGMTPEAATTIVSPMKTYSSAP
ALKSKEVLAQEQAVSQAAANEQVSPAPVKSITSEVPAAKEEVKPTQTSVSQSTTVSPASVA
AETPAPVAKVAPVRTVAAPRVASVKVVTPKVETGASPEHVSAPAVPVTTTSPATDSKLQAT
EVKSVPVAQKAPTATPVAQPASTTNAVAAHPENAGLQPHVAAYKEKVASTYGVNEFSTYRAG
DPGDHGKGLAVDFIVGTNQALGNKVAQYSTQNMAANNISYVIWQQKFYSN
TNSIYGPANTWNAMPDRGGVTANHYDHVHVSFNK*DVVFVLDNSNS*
MNNDGPNFQRHNKAKKAAEALGTAVKDILGANSDNRVALVTYGSDIFDGRSVDVVKGFKE
DDKYYGLQTKFTIQTENYSHKQLTNNAEEIIKRIPTEAPKAKWGSTTNGLTPEQQKEYYL
SKVGETFTMKAFMEADDILSQVNRNSQKIIVHVTDGVPTRSYAINNFKLGASYESQFEQM
*KKNGYLNKSNFLLTDKPDDIKGN*GESYFLFPLDSYQTQIISGNLQKLHYLDLNLNYPKGT
IYRNGPVKEHGTPTKLYINSLKQKNYDIFNFGIDISGFRQVYNEEYKKNQDGTFQKLKEE

AFKLSDGEITELMRSFSSKPEYYTPIVTSADTSNNEILSKIQQQFETILTKENSIVNGTI
EDPMGDKINLQLGNGQILQPSDYTLQGNDGSVMKDGIATGGPNNDGGILKGVKLEYIGNK
LYVRGLNLGEGQKVTLTYDVKLDDSFISNKFYDTNGRTTLNPKSEDPNTLRDFPIPKIRD
VREYPTITIKNEKKLGEIEFIKVDKDNNKLLLKGATFELQEFNEDYKLYLPIKNNNSKVV
TGENGKISYKDLKDGKYQLIEAVSPEDYQKITNKPILTFEVVKGSIKNIIAVNKQISEYH
EEGDKHLITNTHIPPKGIPKTGGKGILSFILIGGAMMSIAGGIYIWKRYKKSSDMSIKK
D

Figure 234 C

b) Construct 2:

>gbs67-515 deleted+ 322

MRKYQKFSKILTLSLFCLSQIPLNTNVLGESTVPENGAKGKLVVKKTDDQNKPLSKATFV
LKTTAHPESKIEKVTAELTGEATFDNLIPGDYTLSEETAPEGYKKTNQTWQVKVESNGKT
TIQNSGDKNSTIGQNQEELDKQYPPTGIYEDTKESYKLEHVKGSVPNGKSEAKAVNPYS
SEGEHIREIPEGTLSKRISEVGDLAHNKYKIELTVSGKTIVKPVDKQKPLETDTTV
TARTVSEVKADLVKQDNKSSYTVKYGDTLSVISEAMSIDMNVLAKINNIADINLIYPETTLTV
TYDQKSHTATSMKIETPATNAAQQTTATVDLKTNQVSVADQKVSLNTISEGMTPEAATT
VSPMKTYSSAPALKSKEVLAQEQAVSQAAANEQVSPAPVKSITSEVPAAKEEVKPTQTS
VSQSTTVGPASVAAETPAPVAKVAPVRTVAAPRVASVKVVTPKVETGASPEHVSAPAVP
VTTTSPATDSKLQATEVKSVPVAQKAPTATPVAQPASTTNAVAAHPENAGLQPHVAAYK
EKVASTYGVNEFSTYRAGDPGDHGKGLAVDFIVGTNQAIGNKVAQYSTQNMAANNISYV
IWQQKFYSNTNSIYGPANTWNAMPDRGGVTANHYDHVHVSFNKGESYFLFPLDSYQTQ
IISGNLQKLHYLDLNLNYPKGTIYRNGPVKEHGTPTKLYINSLKQKNYDIFNFGIDISGFRQ
VYNEEYKKNQDGTFQKLKEEAFKLSDGEITELMRSFSSKPEYYTPIVTSADTSNNEILSKI
QQQFETILTKENSIVNGTIEDPMGDKINLQLGNGQILQPSDYTLQGNDGSVMKDGIATGG
PNNDGGILKGVKLEYIGNKLYVRGLNLGEGQKVTLTYDVKLDDSFISNKFYDTNGRTTLN
PKSEDPNTLRDFPIPKIRDVREYPTITIKNEKKLGEIEFIKVDKDNNKLLLKGATFELQEFNE
DYKLYLPIKNNNSKVVTGENGKISYKDLKDGKYQLIEAVSPEDYQKITNKPILTFEVVKGS
IKNIIAVNKQISEYHEEGDKHLITNTHIPPKGIPKTGQKGILSFILIGGAMMSIAGGIYIWKRY
KKSSDMSIKKD

Oligos to be used:

Oligo GBS67pAMXbafor (vedi operone)
AGTCAGTCTCTAGACGGCACAATAGGAGTTGTAAA
XbaI

Oligo GBS67soe1rev
GCAGGTCGTATCTGTTTCTAACGGCTTTTGTTTGTCCACT

Oligo GBS322soe2for
GACAAACAAAAGCCGTTAGAAACAGATACGACGTGGACAG

Oligo GBS322soe2rev1 (per costrutto non deleto in 67)
GAGTACGAAGACAACATCTTTTCTTAAATGATACGTCAACC

Oligo GBS322soe2rev2 (per costrutto deleto in 67)
TAAAAAGTAACTCTCCCCTTTCTTAAATGATACGTCAACC

Oligo fine67soe3for1 (per costrutto non deleto in 67)
CACGTATCATTTAACAAAGATGTTGTCTTCGTACTCGAT

Oligo fine67soe3for2 (per costrutto non deleto in 67)
CACGTATCATTTAACAAAGGGGAGAGTTACTTTTTATTTCC

Oligo GBS67pAMBglrev (vedi operone)
CACCTGTCATAGATCTTAAGAATACTAAAGCGCATAA
BglII

Figure 234 D

PCR Soe1: **GBS67pAMXbafor + GBS67soe1rev 727 bp**

PCR Soe2 non del: **GBS322soe2for + GBS322soe2rev1 1260 bp**

PCR Soe2 del: **GBS322soe2for + GBS322soe2rev2 1260 bp**

PCR Soe3 non del: **fine67soe3for1 + GBS67pAMBglrev 2061 bp**

PCR Soe3 del: **fine67soe3for2 + GBS67pAMBglrev 1419 bp**

PCR Soe4 non del. PCR25: **GBS67pAMXbafor + GBS67pAMBglrev 4000 bp**
Substrato PCRSoe1, 2, 3 non del

PCR Soe4 del, PCR26: **GBS67pAMXbafor + GBS67pAMBglrev 3312 bp**
Substrato PCRSoe1, 2, 3 del

4- Substitution of GBS 52 with a fusion of GBS322-GBS52 to include GBS 322 into AI-1

(same legend as for GBS67 derivatives)

a) Construct 1: GBS52 complete sequenze included

b) Construct 2: Only part of GBS 52 was included *(deleted bold region)*

DETAILS:

a) Construct 1:

>GBS322-52 senza delezione di 52 (B) PCR 24

MKMNKKVLLTSTMAASLLSVASVQAQETDTTWTARTVSEVKADLVKQDNK
SSYTVKYGDTLSVISEAMSIDMNVLAKINNIADINLIYPETTLTVTYDQK
SHTATSMKIETPATNAAGQTTATVDLKTNQVSVADDKVSLNTISFGMTFE
AATTIVSPMKTYSSAPALKSKEVLAQEQAVSQAAANEQVSPA
PVKSHTSEVPAAKEEVKPTQTSVSQSTTVSPASVAAETPAPVAKVAPVRTVAAPRVAS
VKVVTPKVETGASPEHVSAPAVPVTTTSPATDSKLQATEVKSVPVAQKAP
TATPVAQPASTTNAVAAHPENAGLQPHVAAYKEKVASTYGVNEFSTYRAG
DPGDHGKGLAVDFIVGTNQALGNKVAQYSTQNMAANNISYVIWQQKFYSN
TNSIYGPANTWNAMPDRGGVTANHYDHVHVSFNR *HQLTIVHLEARDIDRPNPQL*
EIAPKEGTPIEGVLYQLYQLKSTEDGDLLAHWNSLTITELKKQAQQVFEA
*TTNQ*QGKATFNQLPDGIYYGLAVKAGEKNRNVSAFLVDLSEDKVIYPKII
WSTGELDLLKVGVDGDTKKPLAGVVFELYEKNGRTPIRVKNGVHSQDIDA
AKHLETDSSGHIRISGLIHGDYVLKEIETQSGYQIGQAETAVTIEKSKTV

TVTIENKKVPTPKVPSRGGL[redacted]QQAMALVIIGGILIALALRLLSKH
RKHQNKD

Figure 234 E

b) Construct 2:

>GBS322-52 (A) PCR 23

MKMNKKVLLTSTMAASLLSVASVQAQETDTTWTARTVSEVLADLVKQDNK
SSYTVKYGDTLSVISEAMSIDMNVLAKINNIADINLIYPETTLTVTYDQK
SHTATSMKIETPATNAACQTTATYDLKTNQVSVADQKVSLNTISEGMTPE
VATTIVSPMKTYSSAPALKSKEVLAQEQAVSQAAANEQVSPA
PVKSITSEVPAAKEEVKPTQTSVSQSTTVSPASVAAETPAPVAKVAPVRTVAAPRVAS
VKVVTPKVETGASPEHVSAPAVPVTTTSPATDSKLQATEVKSVPVAQKAP
IATPVAQPASTTNAVAAHPENAGLQPHVAAYKEKVASTYGVNEFSTYRAG
DPGDFIGKGLAVDFIVGTNQALCNKVAQYSTQNMAANNISYVIWQQKFYSN
TNSIYGPANTWNAMPDRGCVTANHYDHVHVSFNK
QGKATFNQLPDGIYYGLAVKAGEKNRNVSAFLVDLSEDKVIYPKII
WSTGELDLLKVGVDGDTKKPLAGVVFELYEKNGRTPIRVKNGVHSQDIDA
AKHLETDSSGHIRISGLIHGDYVLKEIETQSGYQIGQAETAVTIEKSKTV
TVTIENKKVPTPKVPSRGGLPKTGEQQAMALVIIGGILIALALRLLSKH
RKHQNKD

Oligos to be used:

Oligo 322Aflfor1

AGTCAGTCCTTAAGGATATTATAGTCTCGGACTA

Afl II

Oligo 52 soe1 forA

CACGTATGATTTAACAAACAAGGAAAGGCTACATTTAACC

Oligo 52 soe1 forB

TTCACGTATGATTTAACAAACATCAGTTGACGATTGTTCATC

Oligo52 soe1revA

AAATGTAGCCTTTCCTTGTTTGTTAAATGATACGTGAACG

Oligo52 soe1revB

AACAATCGTCAACTGATGTTTGTTAAATGATACGTGAACG

Oligo 52Xhorev

AAGACCTCCTCGAGATGGCACTT

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Xho I

PCR Soe1A: Oligo 322Aflfor1+ Oligo 52 soe1 revA 1370 bp

PCR Soe2A: Oligo52 soe1forA + Oligo 52Xhorev 520 bp

PCR Soe3A: Oligo 322Aflfor1 + Oligo 52Xhorev 1846 bp (con PCR Soe1A + PCR Soe2A) (PCR23)

PCR Soe1B: Oligo 322Aflfor1+ Oligo 52 soe1 revB 1370 bp

PCR Soe2B: Oligo52 soe2forB + Oligo 52Xhorev 742 bp

PCR Soe3B: Oligo 322Aflfor1 + Oligo 52Xhorev 2068 bp (con PCR Soe1B + PCR Soe2B) (PCR 24)

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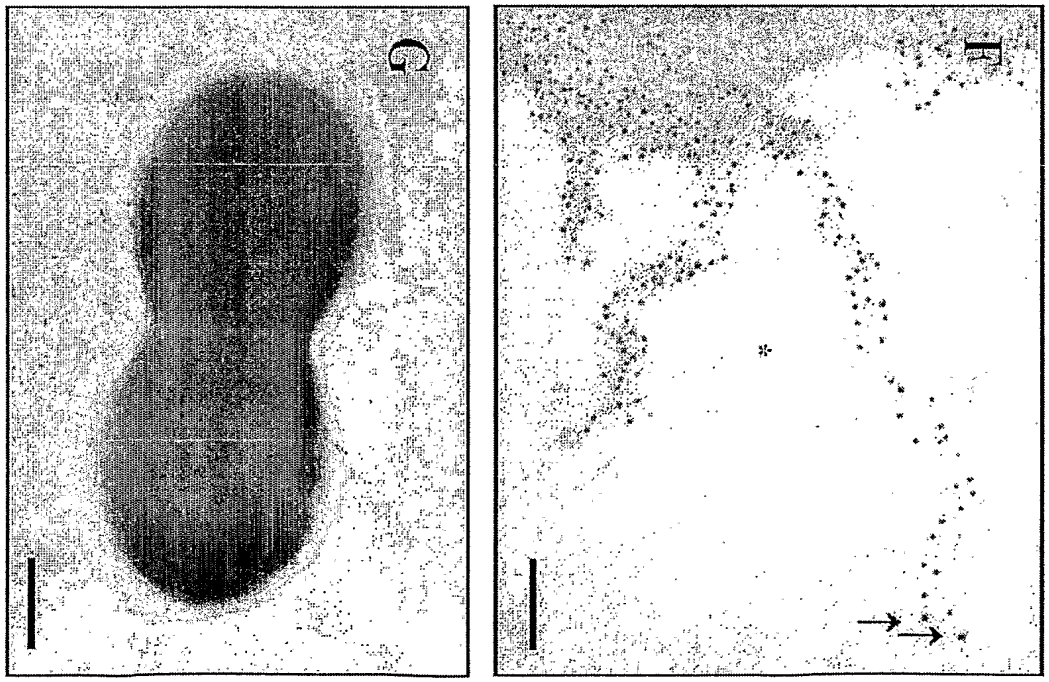
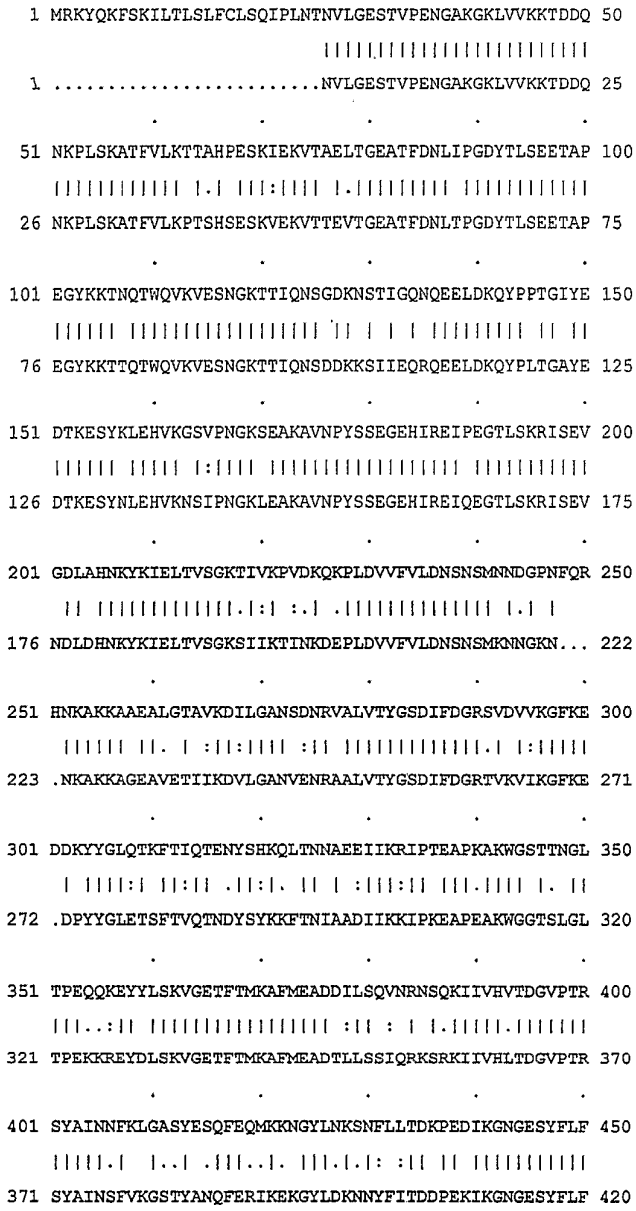
Figure 235

Figure 236



Strain variability - GBS67: 2 alleles



Differences between strains 2603 and H36B

(AA not matching/AA total and % of homology)

114 / 828 (87,1%)

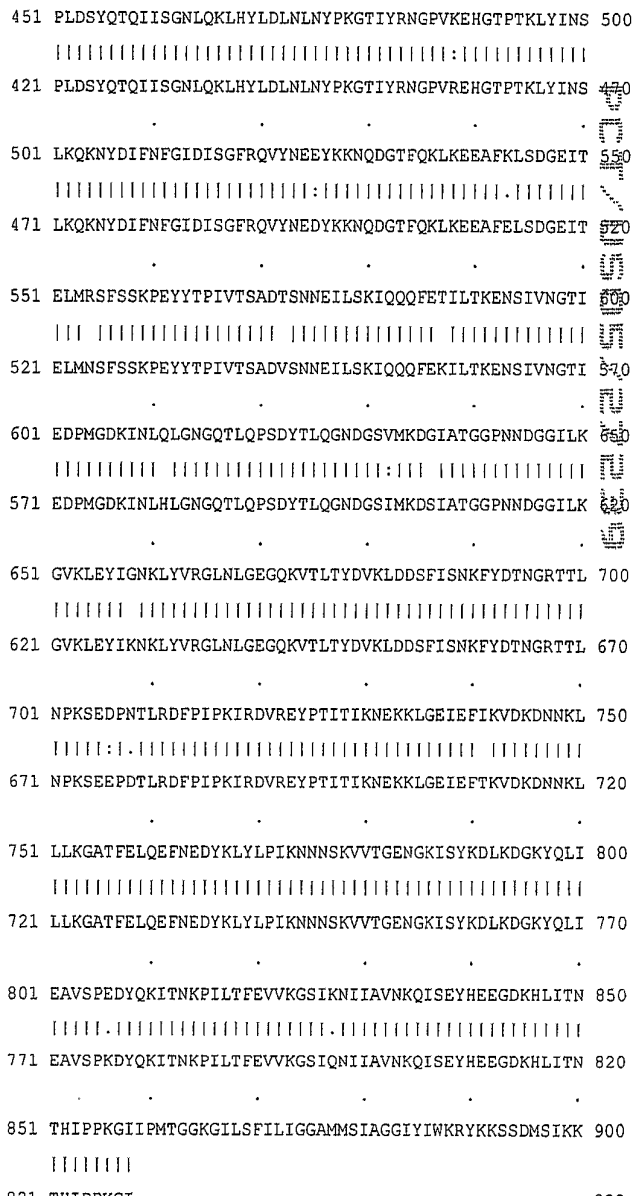


Figure 237

Strain variability - GBS67
Allele I (2603)

Strain	Differences in comparison with 2603 (% of homology)
2603	-
18RS21	1/833 (99.9%)
CJB111	14/833 (98.3%)
515	2/833(99.8%)

Figure 238

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Strain variability - GBS67
Allele II (H36b)

Strain	Differences in comparison with H36b (% of homology)	FACS (α-67 from 2603)
H36B	-	444
1169	10/823 (98.8%)	443
090	9/316 Stop codon (8G to 7G)	0
CJB110	11/824 (98.7%)	245

Figure 239